

ENTOMOLOGY (ENT)

Courses primarily for undergraduates:

ENT 2010: Introduction to Insects

Credits: 1. Contact Hours: Lecture 2.7.

Biological and ecological aspects of insects. Offered online only. 5 weeks. (Typically Offered: Fall, Spring)

ENT 2110: Insects and Society

Credits: 2. Contact Hours: Lecture 2.7.

Prereq: ENT 2010

The importance of insects in human well-being. Insect-human interactions. Primarily for non-science and non-agriculture majors. Offered online only. 11 weeks. (Typically Offered: Fall, Spring)

ENT 2140: Insects in Forensic Science

Credits: 3. Contact Hours: Lecture 3.

Introduction to the use of insects as evidence in court and how they can assist in solving crimes. Topics covered include basic insect biology, systematics, behavior, with emphasis on applications of forensic entomology. Offered even-numbered years. (Typically Offered: Fall)

ENT 2200: Introduction to Forensic Science

(Cross-listed with CJ 2200).

Credits: 3. Contact Hours: Lecture 3.

Study of fundamental forensic science techniques and procedures covering types of physical, chemical, and biological evidence and how this information is used in the legal system. Assessment of crime scenes and various forensic specialties will be introduced. (Typically Offered: Spring)

ENT 2830: Pesticide Application Certification

(Cross-listed with AGRON 2830/ FOR 2830/ HORT 2830).

Credits: 2. Contact Hours: Lecture 2.

Core background and specialty topics in agricultural, and horticultural pesticide applicator certification. Students can select certification categories and have the opportunity to obtain pesticide applicator certification at the completion of the course. Commercial pesticide applicator certification is emphasized. (Typically Offered: Spring)

ENT 3580: Bee Biology, Management, and Beekeeping

(Cross-listed with BIOL 3580).

Credits: 3. Contact Hours: Lecture 3.

Prereq: Introductory (2000-level) biology coursework or permission of an instructor

Bee diversity and evolution, ecology, role as pollinators, behavior, anatomy, and development. Management of bees as agricultural pollinators and honey producers, focusing on honey bees. Working with live bee hives and demonstration of practical beekeeping skills will occur during several field trips to local hives. (Typically Offered: Fall)

ENT 3700: Insect Biology

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Prereq: BIOL 1010 or BIOL 2110

Structure, physiology, evolution, behavior, life histories, and recognition of insects. Collection required. (Typically Offered: Fall)

ENT 3720: Livestock Entomology

Credits: 2. Contact Hours: Lecture 2.

Classroom and off-campus videotape sections. 12 weeks. Recognition, biology, behavior, economic importance, and management of insects and other arthropods affecting livestock and poultry production. Offered odd-numbered years. (Typically Offered: Spring)

ENT 3740: Insects and Our Health

(Cross-listed with MICRO 3740).

Credits: 3. Contact Hours: Lecture 3.

Prereq: 3 credits in Biological Sciences

Identification, biology, and significance of insects and arthropods that affect the health of humans and animals, particularly those that are vectors of disease. Meets International Perspectives Requirement. (Typically Offered: Spring)

ENT 3740L: Insects and Our Health Laboratory

(Cross-listed with MICRO 3740L).

Credits: 1. Contact Hours: Laboratory 3.

Prereq: Credit or concurrent enrollment in ENT 3740 or MICRO 3740

Laboratory and field techniques for studying medical or public health entomology, including: collection, identification and maintenance of medically significant arthropods and experimental design and execution related to the biology of arthropods or arthropod-pathogen interactions. Offered even-numbered years. (Typically Offered: Spring)

ENT 3750: Plant Protection Using Natural Enemies

(Dual-listed with ENT 5750).

Credits: 3. Contact Hours: Lecture 3.

Prereq: ENT 3700 or ENT 3760

Overview of the biology, ecology, and classification of insect pathogens, predators, and parasitoids. Discussion of the use of these organisms in plant protection, including an emphasis on genetic alteration of natural enemies. Offered even-numbered years. (Typically Offered: Spring)

ENT 3760: Fundamentals of Entomology and Pest Management

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Prereq: BIOL 1010 or BIOL 2110

Introduction to entomology and insect-pest management, including life processes, ecology, economics, tactics of population suppression, and ecological backlash. (Typically Offered: Spring)

ENT 4250: Aquatic Insects

(Dual-listed with ENT 5250/ AECL 5250). (Cross-listed with AECL 4250).

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Prereq: BIOL 3120

Morphology, ecology, diversity, and significance of aquatic insects, with emphasis on the collection, curation and identification of taxa in local streams and lakes. Offered odd-numbered years. (Typically Offered: Spring)

ENT 4350: Entomology Field Trip

(Cross-listed with AECL 4350).

Credits: 2. Repeatable, maximum of 2 credits.

Prereq: BIOL 3120; *Permission of Instructor*

Field trip to study insects of major terrestrial and aquatic ecosystems. Location and duration vary. ENT 3700 or ENT 4250 recommended. Offered irregularly. (Typically Offered: Spring, Summer)

ENT 4500: Pesticides in the Environment

(Dual-listed with ENT 5500/ TOX 5500). (Cross-listed with TOX 4500).

Credits: 3. Contact Hours: Lecture 3.

Prereq: 6 credits of BIOL or *Permission of Instructor*

Fate and significance of pesticides in soil, water, plants, animals, and the atmosphere. (Typically Offered: Spring)

ENT 4520: Integrated Management of Diseases and Insect Pests of Turfgrasses

(Dual-listed with PLP 5520/ ENT 5520/ HORT 5520). (Cross-listed with PLP 4520/ HORT 4520).

Credits: 3. Contact Hours: Lecture 3.

Prereq: HORT 3510

Identification and biology of important diseases and insect pests of turfgrasses. Development of integrated pest management programs in various turfgrass environments. Offered even-numbered years. (Typically Offered: Spring)

ENT 4710: Insect Ecology

(Dual-listed with ENT 5710).

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Prereq: 9 credits of BIOL

The contribution of insects to ecosystem function is staggering. This course will focus on insect population ecology, predator-prey interaction and chemical ecology. The role insects in nutrient cycling, pollination and pest management will be discussed with case studies used to highlight the applied nature of insect ecology and its relationship to agriculture. Offered even-numbered years. (Typically Offered: Fall)

ENT 4900E: Independent Study: Research or Work Experience

Credits: 1-3. Repeatable, maximum of 9 credits.

Prereq: 15 credits in biological sciences, Junior or Senior classification; *Permission of Instructor*

Graduation Restriction: A maximum of 9 credits of all (university-wide) 4900 courses may be applied toward graduation. (Typically Offered: Fall, Spring, Summer)

ENT 4900U: Independent Study: Laboratory teaching experience

Credits: 1-3. Repeatable, maximum of 9 credits.

Prereq: *Instructor Permission for Course*

For students registering to be undergraduate laboratory assistants. Graduation Restriction: A maximum of 9 credits of all (university-wide) 4900 courses may be applied toward graduation.

Courses primarily for graduate students, open to qualified undergraduates:

ENT 5110: Integrated Management of Tropical Crops

(Cross-listed with HORT 5110/ PLP 5110).

Credits: 3. Contact Hours: Lecture 3.

Prereq: (ENT 3700 or ENT 3760 or HORT 2210 or PLP 4080 or PLP 4160) or *Graduate Classification*

Applications of Integrated Crop management principles (including plant pathology, entomology, and horticulture) to tropical cropping systems. Familiarization with a variety of tropical agroecosystems and Costa Rican culture is followed by a 10-day tour of Costa Rican agriculture during spring break, then writeup of individual projects. Offered odd-numbered years. Meets International Perspectives Requirement. (Typically Offered: Spring)

ENT 5250: Aquatic Insects

(Dual-listed with ENT 4250/ AECL 4250). (Cross-listed with AECL 5250).

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Prereq: BIOL 3120 or *graduate standing*

Morphology, ecology, diversity, and significance of aquatic insects, with emphasis on the collection, curation and identification of taxa in local streams and lakes. Offered odd-numbered years. (Typically Offered: Spring)

ENT 5300: Ecologically Based Pest Management Strategies

(Cross-listed with AGRON 5300/ SUSAG 5300/ PLP 5300).

Credits: 3. Contact Hours: Lecture 3.

Durable, least-toxic strategies for managing weeds, pathogens, and insect pests, with emphasis on underlying ecological processes. Offered even-numbered years. (Typically Offered: Fall)

ENT 5500: Pesticides in the Environment

(Dual-listed with ENT 4500/ TOX 4500). (Cross-listed with TOX 5500).

Credits: 3. Contact Hours: Lecture 3.

Prereq: 9 credits in BIOL or Graduate Classification

Fate and significance of pesticides in soil, water, plants, animals, and the atmosphere. (Typically Offered: Spring)

ENT 5520: Integrated Management of Diseases and Insect Pests of Turfgrasses

(Dual-listed with PLP 4520/ ENT 4520/ HORT 4520). (Cross-listed with PLP 5520/ HORT 5520).

Credits: 3. Contact Hours: Lecture 3.

Prereq: HORT 3510 or Graduate Classification

Identification and biology of important diseases and insect pests of turfgrasses. Development of integrated pest management programs in various turfgrass environments. Offered even-numbered years. (Typically Offered: Spring)

ENT 5550: Insect Physiology

Credits: 4. Contact Hours: Lecture 3, Laboratory 3.

Prereq: ENT 3700 or Graduate Classification

Life processes of the insects, including reviews of current problems in insect physiology. Offered even-numbered years. (Typically Offered: Spring)

ENT 5680: Advanced Systematics

(Cross-listed with EEOB 5680).

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Principles and practice of systematic biology; taxonomy, nomenclature and classification of plants and animals; sources and interpretation of systematic data; speciation; fundamentals of phylogenetic systematics. (Typically Offered: Spring)

ENT 5700: Plant-Insect Interaction

Credits: 2. Contact Hours: Lecture 2.

Prereq: 9 credits in BIOL or Graduate Classification

Physiological, behavioral, ecological, and evolutionary factors that govern interactions between insects and plants, applications of this knowledge to agriculture, and important results from the study of natural systems. Additional topics covered during the semester include: tritropic interactions, biological control of plants by insects, and pollination biology. Student-led discussions and draws on both the primary and secondary literature. Offered odd-numbered years. (Typically Offered: Fall)

ENT 5710: Insect Ecology

(Dual-listed with ENT 4710).

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Prereq: 9 credits in BIOL or Graduate Classification

The contribution of insects to ecosystem function is staggering. This course will focus on insect population ecology, predator-prey interaction and chemical ecology. The role of insects in nutrient cycling, pollination and pest management will be discussed with case studies used to highlight the applied nature of insect ecology and its relationship to agriculture. Offered even-numbered years. (Typically Offered: Fall)

ENT 5740: Medical Entomology

Credits: 4. Contact Hours: Lecture 3, Laboratory 3.

Prereq: 9 credits in BIOL or Graduate Classification

Identification, biology, and significance of insects and other arthropods that attack people and animals, particularly those that are vectors of disease. Offered even-numbered years. (Typically Offered: Spring)

ENT 5750: Plant Protection Using Natural Enemies

(Dual-listed with ENT 3750).

Credits: 3. Contact Hours: Lecture 3.

Prereq: ENT 3700 or ENT 3760 or Graduate Classification

Overview of the biology, ecology, and classification of insect pathogens, predators, and parasitoids. Discussion of the use of these organisms in plant protection, including an emphasis on genetic alteration of natural enemies. Offered even-numbered years. (Typically Offered: Spring)

ENT 5760: Systematic Entomology

Credits: 5. Contact Hours: Lecture 3, Laboratory 6.

Prereq: ENT 3700 or Graduate Classification

Classification, distribution, and natural history of insects, including fundamentals of phylogenetic systematics, biogeography, taxonomic procedures, and insect collection and curation. Offered even-numbered years. (Typically Offered: Fall)

ENT 5810: Experience in Plant Science Extension and Outreach

(Cross-listed with AGRON 5810/ PLP 5810/ HORT 5810).

Credits: 1.

A supervised learning experience in several extension delivery methods used in the plant sciences. Participation in Iowa State University-based extension programs that may include field crops horticulture, or Master Gardener programming. Offered odd-numbered years. (Typically Offered: Summer)

ENT 5900A: Special Topics: Biological Control and Pathology

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Biological Control and Pathology. (Typically Offered: Fall, Spring, Summer)

ENT 5900B: Special Topics: Chemical Ecology and Behavior

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Chemical Ecology and Behavior. (Typically Offered: Fall, Spring, Summer)

ENT 5900C: Special Topics: Ecology and Pest Management

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Ecology and Pest Management. (Typically Offered: Fall, Spring, Summer)

ENT 5900D: Special Topics: Evolution and Systematics

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Evolution and Systematics. (Typically Offered: Fall, Spring, Summer)

ENT 5900E: Special Topics: Special Research Topics

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Special Research Topics. (Typically Offered: Fall, Spring, Summer)

ENT 5900F: Special Topics: Medical and Veterinary Entomology

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Medical and Veterinary Entomology. (Typically Offered: Fall, Spring, Summer)

ENT 5900G: Special Topics: Molecular Entomology

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Molecular Entomology. (Typically Offered: Fall, Spring, Summer)

ENT 5900I: Special Topics: Toxicology

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Toxicology. (Typically Offered: Fall, Spring, Summer)

ENT 5900K: Special Topics: Teaching Experience

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Teaching Experience. (Typically Offered: Fall, Spring, Summer)

ENT 5900L: Special Topics: Extension Internship

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Independent Study. (Typically Offered: Fall, Spring, Summer)

ENT 5900M: Special Topics: Immature Insects

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Immature Insects. (Typically Offered: Fall, Spring, Summer)

ENT 5900N: Special Topics: Population Genetics

Credits: 1-3. Repeatable.

Prereq: Instructor Permission for Course

Special Topics: Population Genetics. (Typically Offered: Fall, Spring, Summer)

Courses for graduate students:

ENT 6000: Seminar

Credits: 1. Contact Hours: Lecture 1.

Presentation of research results. (Typically Offered: Fall, Spring, Summer)

ENT 6750: Insecticide Toxicology

(Cross-listed with TOX 6750).

Credits: 3. Contact Hours: Lecture 2, Laboratory 3.

Prereq: ENT 5550 or TOX 5010 or Graduate Classification

Principles of insecticide toxicology; classification, mode of action, metabolism, and environmental effects of insecticides. Offered even-numbered years. (Typically Offered: Fall)

ENT 6990: Research

Credits: 1-30. Repeatable.

Prereq: Instructor Permission for Course

Research. (Typically Offered: Fall, Spring, Summer)