ENTOMOLOGY (ENTO)

ENTO 105 Natural History of Arthropods Associated with Plants
Description: Classification and biology of plant-feeding insects; how insects damage plants; principles of insect ecology and integrated pest management.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded
Offered: FALL

ENTO 109 Beekeeping
Description: Life history and habits of the honey bee; methods of management; honey and wax production; apiary equipment; pollination; identity and control of bee diseases.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ENTO 115 Insect Biology
Crosslisted with: BIOS 115
Description: Fundamental insect biology (anatomy, development, physiology, behavior, ecology and diversity). Economic and medical importance of insects and principles of insect pest management.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Prerequisite for: ENTO 200; ENTO 400; PLPT 210
ACE: ACE 4 Science
Course and Laboratory Fee: $10

ENTO 116 Insect Identification
Crosslisted with: BIOS 116
Description: Identification of representative orders and families of insects by their anatomy, metamorphosis, habits and habitats. Sight recognition emphasized but dichotomous keys also used. Interrelation of insect and habitats stressed.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option
Course and Laboratory Fee: $15

ENTO 200 Behavior of Arthropods
Prerequisites: ENTO 115 or equivalent introductory course
Description: An in-depth look at how arthropods find and defend their resources, how they avoid predators, how they find mates, how they mate, and how some exist in highly ordered social settings.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ENTO 222 Insects and Society
Description: Covers the intersection of insects and humans with topics ranging from food, disease, environmental and cultural interfaces, and engineering design. Investigative activities explore human attitudes towards insects, knowledge, and conservation behaviors towards insects.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: SPRING

ENTO 300 Toxins in the Environment
Crosslisted with: BIOS 300, NRES 300
Prerequisites: One semester BIOS and one semester CHEM
Description: Introduction to the principles of toxicology as they apply to environmental contaminants, agri-chemicals, and industrial and naturally occurring chemicals.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ENTO 308 Management of Field Crop Insects
Prerequisites: BIOS 101 and BIOS 101L or LIFE 120 and LIFE 120L or PLAS 131 and PLAS 132/PLAS 134
Notes: ENTO 115 recommended
Description: Focuses on the concepts and principles of management of beneficial and pest insects that are associated with field crops.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: SPRING

ENTO 309 Career Experience
Prerequisites: Junior standing; introductory courses in entomology; and permission prior to enrolling
Notes: Course must be concluded with preparation of a written report. P/N only.
Description: Career experience in applied practices is provided via employment with an entomology-related agency, business or industry, research, extension, or teaching activity.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 4
Grading Option: Pass No Pass
Experiential Learning: Internship/Co-op

ENTO 315 Undergraduate Research Seminar
Description: Provides an understanding of qualitative, quantitative, and mixed methods approaches for research studies. Focuses on knowing the definition for different research approaches, considering philosophical world views, reviewing the literature, understanding the use of theory, anticipating ethical issues, and developing writing strategies.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: SPRING

ENTO 395 Experiential Learning for Career Development in Insect Science
Prerequisites: Sophomore standing.
Notes: A faculty adviser for the area of interest must be identified prior to registering for the course.
Description: Application and integration of the Insect Science curriculum within the context of extension and service, research, or teaching experience.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 5
Grading Option: Graded with Option

ENTO 395A Experiential Learning for Career Development in Insect Science Research Experience
Prerequisites: Sophomore standing.
Notes: A faculty adviser for the area of interest must be identified prior to registering for the course.
Description: Application and integration of the Insect Science curriculum within the context of extension and service, research, or teaching experience.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 5
Grading Option: Graded with Option
Experiential Learning: Research

ENTO 395B Experiential Learning for Career Development in Insect Science Teaching Experience
Prerequisites: Sophomore standing.
Notes: A faculty adviser for the area of interest must be identified prior to registering for the course.
Description: Application and integration of the Insect Science curriculum within the context of extension and service, research, or teaching experience.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 5
Grading Option: Graded with Option
Experiential Learning: Student Teaching/Education Practicum

ENTO 395C Experiential Learning for Career Development in Insect Science Extension Experience
Prerequisites: Sophomore standing.
Notes: A faculty adviser for the area of interest must be identified prior to registering for the course.
Description: Application and integration of the Insect Science curriculum within the context of extension and service, research, or teaching experience.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 5
Grading Option: Graded with Option
Experiential Learning: Creative Activity

ENTO 400 Biology and Classification of Insects
Prerequisites: ENTO 115 or equivalent introductory course.
Description: Survey of orders and common families of insects with emphasis on biology, ecology, and phylogeny. Sight recognition of major orders and families, identification of other families with keys. Insect collection required.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Graded with Option
Course and Laboratory Fee: $20

ENTO 401 Insect Physiology
Crosslisted with: ENTO 801
Prerequisites: CHEM 251 or CHEM 255;12 hrs entomology or biological sciences (zoology)
Description: Functions and other phenomena associated with the major organ systems of insects; the cuticle, nervous, circulatory, digestive, metabolism, nutrition, locomotion, reproduction, respiration, and growth and development.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ENTO 402 Aquatic Insects
Crosslisted with: BIOS 485, BIOS 885, ENTO 802, NRES 402, NRES 802
Prerequisites: 12 hrs biological sciences
Description: Biology and ecology of aquatic insects.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option
Prerequisite for: BIOS 485L, BIOS 885L, ENTO 402L, ENTO 802L, NRES 402L, NRES 802L

ENTO 402L Identification of Aquatic Insects
Crosslisted with: BIOS 485L, BIOS 885L, ENTO 802L, NRES 402L, NRES 802L
Prerequisites: Parallel ENTO 802, NRES 402/802, BIOS 485/885.
Description: Identification of aquatic insects to the family level.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option
Course and Laboratory Fee: $25

ENTO 403 Management of Horticultural Crop Insects
Crosslisted with: ENTO 803
Prerequisites: Introductory biology course.
Description: The biology, ecology and management of insect pests of horticultural crops such as vegetables, fruit trees, trees and shrubs, greenhouse crops, turf and ornamentals. Employing Integrated Pest Management (IPM) strategies to maintain pests below damaging levels while minimizing the use of traditional insecticides.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ENTO 406 Insect Ecology
Crosslisted with: BIOS 406, BIOS 806, ENTO 806
Prerequisites: BIOS/NRES 220 and 222.
Description: Biotic and abiotic factors as they influence insect development, behavior, distribution, and abundance.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ENTO 409 Insect Control by Host-Plant Resistance
Crosslisted with: ENTO 809
Prerequisites: 12 hrs agricultural sciences and/or biological sciences including one course in entomology and one course in genetics.
Description: Explore resistance of crops to herbivorous arthropods. Iinvestigate how insect behavior and physiology are affected by resistance, critically review current research on plant resistance genes, and the molecular, biochemical and physiological aspects of insect/microbe interactions with host plants.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ENTO 412 Entomology and Pest Management
Crosslisted with: ENTO 812
Prerequisites: Introductory course in ENTO.
Description: Principles and practices of managing insects pests. Pest management theory, use of sampling, evaluation, tactics, types of insect pests, and current issues.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Course and Laboratory Fee: $50

ENTO 414 Forensic Entomology
Crosslisted with: ENTO 814, FORS 414, FORS 814
Prerequisites: ENTO 115 or equivalent introductory course.
Description: Application of entomology to legal issues. Criminal investigations, insects of forensic importance, insect succession on carrion, and case studies.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ENTO 415 Medical Entomology
Crosslisted with: ENTO 815
Prerequisites: Introductory course in ENTO.
Description: Direct and indirect importance of insects in human medicine. Principles of arthropod-borne disease, medically important arthropod groups, and arthropod-transmitted diseases.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Course and Laboratory Fee: $50

ENTO 416 Forensic Insect Succession
Crosslisted with: ENTO 816
Description: Forensic insect succession and specific forensically important insects including their life cycle, biology, and association with decomposition. Case studies about how forensic entomology has been used in solving crimes will also be covered.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Offered: SPRING

ENTO 485 Current Issues in Entomology
Prerequisites: Senior standing; completion of ENTO core requirements.
Notes: Capstone course. Fulfills the capstone requirement for the insect science major.
Description: The application and integration of biological principles of the insect science program.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
ACE: ACE 10 Integrated Product

ENTO 495 Grasslands Seminar
Crosslisted with: PLAS 495, GRAS 495, NRES 495, RNGE 495, SOIL 495
Prerequisites: Junior standing.
Description: Topic varies and deals with different aspects of forage and/or range and/or livestock, turf and/or landscape grasses, natural habitats, and wetlands.
Credit Hours: 1-2
Min credits per semester: 1
Max credits per semester: 2
Max credits per degree: 4
Grading Option: Graded with Option

ENTO 496 Independent Study in Entomology
Crosslisted with: ENTO 896
Prerequisites: 12 hrs biological sciences and/or agricultural sciences.
Notes: Independent study contracts must be filed with the department.
Description: Individual or group projects in research, literature review, or extension of course work.
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 12
Grading Option: Graded with Option
Course and Laboratory Fee: $50

ENTO 499H Honors Thesis
Prerequisites: Admission to the University Honors Program and permission, AGRI 299H recommended.
Description: Conduct a scholarly research project and write a University Honors Program or undergraduate thesis.
Credit Hours: 3-6
Min credits per semester: 3
Max credits per semester: 6
Max credits per degree: 6
Grading Option: Graded