

Entomology Undergraduate Minor & Certificate Course Catalog

Required Courses

Course	Course Description	Typically Offered
ENTO/ECOL 415 – Insect Biology	<p>ENTO 415R provides a basic background in insect biology with modules in insect diversity, evolution, development, physiology, and ecology. In addition, the course will introduce students to different fields like medical entomology, agricultural entomology, and pest control.</p> <p>Pre-Requisite: MCB 181 & ECOL182</p>	Fall

Elective Courses

Course	Course Description	Typically Offered
<p>ENTO 160D1 – How Insects Shaped Human History</p> <p>(Gen Ed: Building Connections)</p>	<p>Learn about the role insects play in the development and maintenance of healthy human societies. This class allows students to explore the multitude of ways insects and humans intertwine and intersect. Topics include insect biology, insect diversity, the history of insect borne diseases on human society, insect derived products, insects in agriculture, and insects in art</p>	Fall, Spring, Summer
<p>ENTO 170C2 – Secrets of Success: How Insects Conquered Earth!</p> <p>(Gen Ed: Tier 1 Natural Sciences)</p>	<p>Terrestrial arthropods (insects and their relatives, such as spiders, scorpions, and mites) are the most successful and diverse form of life on Earth. This course explores the biology of these fascinating organisms and the critical roles that they play in healthy ecosystems. The course also introduces the students to the mechanisms of evolution, because, as someone once said “Nothing in biology makes sense except in the light of evolution.” (Theodosius</p>	Fall, Spring, Summer

	Dobzhansky). Lastly, the course emphasizes how we learn about biology through the scientific method, the design of experiments, and the nature of hypotheses and predictions.	
<p>ENTO 300 – Insect Pest Management for Desert Cropping Systems (UA-Yuma only)</p>	<p>This course is intended to provide the student with a general understanding of the principles and practices of insect pest management (IPM) in agricultural crops common to the desert southwest. Fundamentals of insect ecology and biology, IPM concepts (including sampling, economic thresholds and other decision-making tools) and innovative management tactics (including cultural control, biological control, host plant resistance and insecticidal control) will be discussed in detail. A number of the lectures will include in-depth case studies of successful pest management programs employed in desert crops such as cotton, leafy vegetables, melons and citrus grown in Arizona and southern California.</p>	Fall
<p>ENTO 401 – Ecological Physiology (Cross listed as ECOL/PSIO 401)</p>	<p>This course focuses on conceptual issues in whole-organism biology. We will develop an understanding of the different types of environmental variability that organisms contend with, how they adjust their growth and development to respond to this variation, and constraints that may prevent organisms from maximizing their response. We will explore principals of life history evolution, phenotypic plasticity, and tradeoffs among life history traits, in a way that integrates the fields of Ecology, Evolutionary Biology, and Physiology at the level of the whole organism.</p>	Fall
<p>ENTO 405 – Aquatic Entomology</p>	<p>This course examines the taxonomy, ecology, evolution, and conservation of aquatic insects. Having a basic understanding of aquatic entomology will be useful for students interested in aquatic ecology, fisheries biology, water quality</p>	Spring (even years)

	<p>monitoring, conservation biology, and/or outdoor recreation (e.g. fly fishing). Active learning is a major focus of the course, and includes observing, documenting, and collecting aquatic insects in the lab and field.</p>	
<p>ENTO 407 – Insect Discovery</p>	<p>Insect Discovery is a special University of Arizona course that combines insect biology and inquiry-based science teaching experience. Students will participate in lectures, discussions and mini-labs to gain a background in insect biology. In weekly lab/workshops, students will develop science communication skills by leading visiting elementary school children in hands-on science activities using live insects.</p>	<p>Spring</p>
<p>ENTO 417 – Insect Systematics</p>	<p>The goal of this is course is for the student to gain an appreciation and understanding of insect diversity, and that you learn the basic tools and procedures used in systematic biology. While the student is expected to learn some details about the evolution and classification of insects, including insect structure and phylogeny, and how to identify insect orders and common families, the course is mostly concerned that you come away from the course with an understanding of the field of systematics as well as hands-on experience with a wide variety of techniques used by systematists to study hexapods.</p>	<p>Fall</p>
<p>ENTO 432 – Comparative Immunology</p>	<p>How have immune systems evolved from simple origins? We will cover comparative immunology of prokaryotes, protozoans, plants, fungi, invertebrates, “lower” vertebrates, and humans. By studying the origins and evolution of immunity across the history of life, and following the progression of immune system complexity across different lineages, we begin to see patterns that help explain how our immune system developed from</p>	<p>Fall</p>

	<p>those of our ancestors. Such comparative study will highlight the strengths and weaknesses of our immune system, and point to ways in which other organisms have overcome the same pathogenic stresses we face. This class will pull together data from many fields, including immunology, molecular and cell biology, ecology, and evolution.</p>	
<p>ENTO 436 – Agro-Ecology</p>	<p>Agro-ecology is the application of ecological principles to the production of food and fiber. The underlying goals are to assess and promote the long-term sustainability of agricultural production systems. Through this course we will study how agro-ecosystems vary across time and space and will examine the trade-offs associated with different cropping systems and management practices. We will begin with a discussion of the four components of sustainable agriculture combined with a brief history of major agricultural trends. Then we will examine the ecological interactions involved in crop production, observe how these interactions shape agricultural practices and conclude with a discussion of domestic and international government policies that influence agricultural sustainability.</p>	<p>Spring</p>
<p>ENTO 457 – Medical & Veterinary Entomology</p>	<p>The objective of this course is to introduce students to arthropods of medical and veterinary importance. We will examine various arthropod families, the pathogens these arthropods can transmit, and the current control and treatment strategies for both the arthropod vectors and the transmitted pathogens.</p>	<p>Spring</p>
<p>ENTO 468 – Integrated Pest Management (IPM)</p>	<p>This course is intended to provide students with a general understanding of the principles and practices of IPM. Fundamentals of insect ecology and</p>	<p>Fall</p>

	<p>biology, IPM concepts (including sampling, economic thresholds, and other decision-making tools) and innovative management tactics (including cultural control, biological control, host plant resistance and insecticidal control) will be discussed. This course also covers successful management programs of agricultural, medical, and urban pests.</p>	
<p>ENTO 403R – Biology Animal Parasites</p>	<p>This course is intended to provide a broad overview of the field of parasitology, with emphasis on parasites of veterinary and human importance. Topics to be covered will include parasite morphology, physiology, life cycle, epidemiology, pathogenesis, and host responsiveness (immunology).</p> <p>Pre-Requisites: 12 Units of Biology and Microbiology</p>	<p>Spring</p>
<p>ENTO 497C – Greenhouse Pest Management</p>	<p>This course examines Integrated Pest Management principles, methods, and practices commonly used in controlled environment agriculture operations. Includes hands on monitoring and identification of pests in the Controlled Environment Agriculture Center (CEAC) teaching/research greenhouses.</p>	<p>Spring</p>