Entomology and Plant Pathology (ENPL)

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Entomology and Plant Pathology Website (http://entomology.uark.edu/)

The Department of Entomology and Plant Pathology offers three undergraduate minors:

- Entomology
- Plant Pathology
- As well as an interdisciplinary Pest Management (http://catalog.uark.edu/undergraduatecatalog/collegesandschools/dalebumperscollegeofagriculturalfoodandlifesciences/pestmanagementpmgt/) minor.

Full degree programs are offered only at the graduate level.

Entomology is the branch of science concerned with the study of insects and related organisms. It involves studies of their biology, structure, identification, economic significance, and population management. The major emphasis of the curriculum is understanding insect biology and applying that knowledge in an integrated approach to insect-pest management.

Plant pathology is the study of interrelationships of plants with the abiotic and biotic agents that affect plant health and productivity. The goal of the discipline is to minimize the impact of plant diseases on agricultural production and human health. Scientific training within the department focuses on the nature, cause, and management of plant diseases.

Undergraduate students interested in graduate work in entomology or plant pathology should pursue one of the minors here or the Pest Management minor.

Minor in Entomology (ENTO-M)

A student planning to minor in Entomology must notify the ENTO program adviser for consultation and more detailed information. The Entomology Minor consists of 15 semester hours of courses in Entomology, including the following:

Core Requirements		
ENTO 3013	Introduction to Entomology	3
Core Electives		**12**
Students must complete at least 12 credits of additional ENTO courses selected with the approval of the Entomology program adviser. Examples of available electives include:		
ENTO 1023	Insects, Science and Society	
ENTO 1021L	Insects, Science and Society Lab	
ENTO 3011L	Introduction to Insect Identification Lab	
ENTO 4013	Insect Behavior and Chemical Ecology	
ENTO 4024	Insect Diversity and Taxonomy	
ENTO 4043	Honey Bee Biology and Beekeeping	
ENTO 4053	Insect Ecology	
ENTO 4123	Insect Pest Management	
ENTO 4133	Advanced Applied Entomology	
ENTO 400V	Special Problems	
ENTO 410V	Special Topics	
Total Hours		**15**

Minor in Plant Pathology (PLPA-M)

A student planning to minor in plant pathology should notify the Department of Entomology and Plant Pathology and consult an adviser. A minor in Plant Pathology consists of 19 hours to include the following:

PLPA 3003 & PLPA 3001L	Principles of Plant Pathology and Principles of Plant Pathology Laboratory	4
PLPA 400V	Research	3
Select one of the following:		3
PLPA 4223	Plant Disease Control	
PLPA 4304	Applied Plant Disease Management	
Select three of the following:		9
BIOL 4233	Genomics and Bioinformatics	
BIOL 4353	Ecological Genetics/Genomics	
BIOL 4753	General Virology	
PLPA 4333	Biotechnology in Agriculture	
Total Hours		**19**

Graduate Faculty

Bateman, Nick, Ph.D. (Mississippi State University), B.S. (University of Arkansas-Monticello), Assistant Professor, 2016.
Bluhm, Burt H., Ph.D., M.S. (Purdue University), B.S. (University of Oklahoma), Associate Professor, 2008, 2014.
Cartwright, Richard D., Ph.D. (University of California at Davis), M.S., B.S. (University of Arkansas), Extension Professor, 1993, 2005.
Correll, Jim, Ph.D., M.S. (University of California-Berkeley), B.S. (Pennsylvania State University), Distinguished Professor, 1989, 2018.
Dowling, Ashley Patrick Gregg, Ph.D. (University of Michigan-Ann Arbor), B.S. (University of Arizona), Professor, 2008, 2019.
Egan, Martin J., Ph.D., B.Sc. (University of Exeter, United Kingdom), Assistant Professor, 2016.
Faske, Travis, Ph.D. (Texas A&M University), M.S. (Oklahoma State University), B.S. (Tarleton State University), Associate Professor, 2015.
Goggin, Fiona, Ph.D. (University of California-Davis), B.S. (Cornell University), Professor, 2001, 2011.
Hopkins, John D., Ph.D. (University of Arkansas), M.S., B.S. (Clemson University), Associate Professor, 2001.
Joshi, Neelendra, Ph.D. (Pennsylvania State University), Assistant Professor, 2015.
Korth, Ken L., Ph.D. (North Carolina State University), B.S. (University of Nebraska), Professor, 1999, 2009.
Loftin, Kelly M., Ph.D. (New Mexico State University), M.S. (University of Arkansas), B.S. (Arkansas Tech), Associate Professor, 2002, 2010.
Lorenz, Gus M., Ph.D., B.S.A., M.S. (University of Arkansas), Distinguished Professor, 1997, 2013.
McDermott, Emily, Ph.D. (University of California-Riverside), B.S. (The Ohio State University), Assistant Professor, 2020.
Rojas, Alejandro, Ph.D., M.S. (Michigan State University), M.S., B.S. (Los Andes University), Assistant Professor, 2018.
Rojas, Clemencia, Ph.D. (Cornell University), M.S. (Purdue University), B.S. (Universidad de Los Andes, Colombia), Assistant Professor, 2015.
Rupe, John C., Ph.D., M.S. (University of Kentucky), B.S. (Colorado State University), University Professor, 1984, 2019.

Spurlock, Terry, Ph.D. (University of Arkansas), Extension Associate Professor, 2015.
Steinkraus, Donald C., Ph.D. (Cornell University), M.S. (University of Connecticut), B.A. (Cornell University), Professor, 1989, 1999.
Studebaker, Glenn, Ph.D., M.S. (University of Arkansas), B.S. (Missouri Southern State University), Associate Professor, 1993.
Szalanski, Allen Lawrence, Ph.D. (University of Nebraska-Lincoln), M.S. (Kansas State University), B.S. (University of Manitoba), Professor, 2001, 2011.
Thrash, Ben, , Assistant Professor, 2018.
Tzanetakis, Ioannis E., Ph.D. (Oregon State University), M.S., B.S. (Agricultural University of Athens, Greece), Professor, 2008, 2016.
Wamishe, Yeshi Andenow, Ph.D. (University of Arkansas) M.S., B.S. (Addis Ababa University, Ethiopia), Associate Professor, 2011, 2016.

Entomology Courses

ENTO 1021L. Insects, Science and Society Lab. 1 Hour.
To educate students on the importance of insects in biology and science, human and animal medicine, ecosystems, agriculture, pollination, genetic research, the arts, and human culture and history. The lab will be a hands-on approach to reinforcing entomological concepts addressed in lecture. Corequisite: ENTO 1023. (Typically offered: Fall and Spring)

ENTO 1023. Insects, Science and Society. 3 Hours.
To educate students on the importance of insects in biology and science, human and animal medicine, ecosystems, agriculture, pollination, genetic research, the arts, and human culture and history. Corequisite: ENTO 1021L. (Typically offered: Spring)

ENTO 3011L. Introduction to Insect Identification Lab. 1 Hour.
Introductory lab course on insect identification, collection, and curation techniques, primarily designed as an intensive add-on to ENTO 3013 for students wanting a more in-depth examination of insect diversity. Insect collection required. Course includes field trips. Students are encouraged to contact instructor before enrolling. Pre- or Corequisite: ENTO 3013. (Typically offered: Fall)
This course is cross-listed with BIOL 3011L.

ENTO 3013. Introduction to Entomology. 3 Hours.
Fundamentals of insect biology including structure and function, development, ecology, behavior, plant feeding and disease transmission. Lecture 3 hours/week. Students interested in a more intensive examination of insects, including collection, curation, and identification techniques, should sign up for the separate one credit lab ENTO 3011L. Students are strongly encouraged to take BIOL 1543 before registering for this course. (Typically offered: Fall)
This course is cross-listed with BIOL 3013.

ENTO 400V. Special Problems. 1-4 Hour.
Special problems. (Typically offered: Fall, Spring and Summer)

ENTO 4013. Insect Behavior and Chemical Ecology. 3 Hours.
Basic concepts in insect senses and patterns of behavioral responses to various environmental stimuli. Previous knowledge of basic entomology is helpful, but not required. Lecture 2 hours, laboratory/discussion 2 hours per week. Corequisite: Lab component (Typically offered: Spring Even Years)
This course is cross-listed with BIOL 4013.

ENTO 4024. Insect Diversity and Taxonomy. 4 Hours.
Principles and practices of insect classification and identification with emphasis on adult insects. Corequisite: Lab component. Prerequisite: ENTO 3013. (Typically offered: Fall Even Years)
This course is cross-listed with BIOL 4024.

ENTO 4043. Honey Bee Biology and Beekeeping. 3 Hours.
To acquaint the student with social insects in general and honey bees in particular, to promote an interest in beekeeping as a hobby, occupation, and/or science, to give the students the basic knowledge of how to keep honey bees, and to increase awareness of the contribution that pollinating insects make to agriculture, natural ecosystems, and human life. Lecture 3 hours, plus beekeeping field day. (Typically offered: Spring)

ENTO 4053. Insect Ecology. 3 Hours.
To develop understanding of important ecological concepts through study of dynamic relationships among insects and their environment. To become familiar with the literature of insect ecology, and interpretation and critique of ecological research. Previous knowledge of basic entomology and/or ecology will be assumed. Corequisite: Lab component. (Typically offered: Fall Even Years)
This course is cross-listed with BIOL 4053.

ENTO 410V. Special Topics. 1-3 Hour.
Topics not covered in other courses or a more intensive study of specific topics in entomology. (Typically offered: Irregular) May be repeated for degree credit.

ENTO 4123. Insect Pest Management. 3 Hours.
Study of principles and concept of insect pest management. Areas covered include survey of arthropod pests and damage, population dynamics, damage thresholds, physiological units, prediction models, surveillance, arthropod sampling, strategies and tactics utilized to maintain pest populations below economic injury levels. Prerequisite: ENTO 3013. (Typically offered: Spring Odd Years)

ENTO 4133. Advanced Applied Entomology. 3 Hours.
Biology and ecology of major arthropod pests as model applied management systems. Activities include independent study, literature review and group discussions. Knowledge of general entomology and pest management is required. Self-learning modules are available. Lecture 2 hours/week and direct self-study laboratory 2 hours/week. Corequisite: Lab component. Prerequisite: ENTO 3013. (Typically offered: Spring Even Years)

Plant Pathology Courses

PLPA 3001L. Principles of Plant Pathology Laboratory. 1 Hour.
Lab course in examination of the causes and symptoms of plant disease and the genetics of plant disease. Physiology, and ecology of host-pathogen interactions. Spread of disease and principles of disease control. Pre- or Corequisite: PLPA 3003 or BIOL 3003. (Typically offered: Fall)
This course is cross-listed with BIOL 3001L.

PLPA 3003. Principles of Plant Pathology. 3 Hours.
Examination of the causes and symptoms of plant disease and the genetics of plant disease. Physiology, and ecology of host-pathogen interactions. Spread of disease and principles of disease control. (Typically offered: Fall)
This course is cross-listed with BIOL 3003.

PLPA 400V. Research. 1-6 Hour.
Original investigations of assigned problems in plant pathology. Prerequisite: PLPA 3004. (Typically offered: Fall, Spring and Summer)

PLPA 4123. Bacterial Lifestyles. 3 Hours.
The course will introduce students to bacteria as prokaryotic organisms, different from eukaryotes such as plants and animals. Model microbial systems will be studied in more detail to identify unique strategies that bacteria employ to thrive in their respective environment, whether they are causing diseases or establishing beneficial interactions with animal or plants or coexisting with other microorganisms in diverse ecological environments. The course will also cover special adaptations that bacteria have evolved to adapt to harsh environments and how these adaptations can be harnessed to control pollution. Prerequisite: (BIOL 2013 and BIOL 2011L) or BIOL 3123. (Typically offered: Spring Odd Years)
This course is cross-listed with BIOL 4223.

PLPA 4223. Plant Disease Control. 3 Hours.
Principles, methods and mechanics of plant disease control. Emphasis is given to the integration of control measures and epidemiology of plant diseases. Lecture 3 hours per week. Prerequisite: PLPA 3003. (Typically offered: Fall)
This course is cross-listed with BIOL 4133.

PLPA 4304. Applied Plant Disease Management. 4 Hours.
A plant pathology course emphasizing practical understanding of the concepts and principles of agronomic and horticultural crop disease management, including disease diagnosis, monitoring, and using models to forecast disease events. Prerequisite: PLPA 3003 or instructor consent. (Typically offered: Irregular)

PLPA 4333. Biotechnology in Agriculture. 3 Hours.
Discussion of the techniques, applications, and issues of biotechnology as it is being used in modern agriculture. Coverage includes the basics of molecular biology, production of transgenic plants and animals, and new applications in the agricultural, food, and medical marketplace. Lecture and discussion, 3 hours per week. (Typically offered: Fall)
This course is cross-listed with BIOL 4333.

PLPA 462V. Internship. 1-6 Hour.
Supervised practical work experience in pest management to develop and demonstrate professional competence. A maximum of 6 hours credit per semester or summer session is permitted. Faculty approval of projects proposal prior to enrollment, and written or oral reports are required. (Typically offered: Irregular) May be repeated for up to 9 hours of degree credit.