ENTM - ENTOMOLOGY

ENTM612 Insect Ecology (3 Credits)
An advanced course in plant-insect interactions, population and community ecology, insect biogeography and macroevolution, and their applications. Emphasis on primary literature, both foundational and contemporary.
Prerequisite: Permission of CMNS-Entomology department; or must have completed a course in general ecology.

ENTM667 Aquatic Entomology (3 Credits)
Biology, ecology, and taxonomy of aquatic insects in lotic and lentic habitats, their adaptation to aquatic life, their function in aquatic ecosystems, and their relationship to environmental deterioration.
Credit Only Granted for: ENTM667 or ENTM767.

ENTM699 Advanced Entomology (1-6 Credits)
Credit and prerequisites to be determined by the department. First and second semesters. Studies of minor problems in morphology, physiology, taxonomy and applied entomology, with particular reference to the preparation of the student for individual research.

ENTM701 Teaching & Professional Development in Biology (1 Credit)
Provides graduate students in the biological sciences with the foundational knowledge to become better teaching assistants and gives them an introduction into the skills and tools that they need to develop as professional scientists and educators.
Cross-listed with: BISI701.
Credit Only Granted for: ENTM701, BISI688Z, CBMG688Z, or BIOL701.
Formerly: BISI688Z, CBMG688Z, BIOL701.
Additional Information: Priority enrollment will be given to students in the BISI Graduate Program.

ENTM710 Insect Biodiversity, Physiology and Ecology (3 Credits)
Surveys the remarkable diversity of insects and their key roles in ecological systems. Major topics include insect systematics, anatomy, physiology, ecology, and evolution, considered from both empirical and theoretical perspectives, as well as applications in agriculture, human health, and conservation biology.

ENTM720 Native, Invasive, and Exotic Species (3 Credits)
This course will examine introduced species impact, how invasive and exotic species spread, their impact of native species and methods of invasive species control.

ENTM725 IPM Practices (3 Credits)
Introduction to the techniques of integrated pest management for proper pest control management. Integrated Pest Management (IPM) has been the most successful management paradigm for agriculture, forestry, and urban pest management for more than five decades. Students will learn the fundamental elements of IPM programs including recognition and monitoring of key pests, formation of decision-making guidelines, intervention tactics, and fundamentals of assessment.

ENTM730 Plant Diagnostics (3 Credits)
The first step to managing pest and disease problems in plants is an accurate diagnosis. In this course, students will learn about the various biotic (living) and abiotic (nonliving) factors that can contribute to plant problems, and how to evaluate evidence and distinguish between these factors to arrive at an accurate diagnosis.

ENTM735 Sustainability (3 Credits)
Application of the concept of sustainability to both ecosystem services provided by beneficial insects, as well as the management of injurious insects. Ecological functions of insects in the natural and anthropogenic landscape will be illustrated and discussed. In addition, case histories and discussions will focus on themes of sustainability in successful IPM programs, as well as specific practices that lead to sustainable agriculture. The course will conclude with the development of a list of sustainable practices for conserving and managing insects in the landscape.

ENTM740 Organic Practices (3 Credits)
Alternatives to chemical pesticides, what being certified organic entails and how these practices relate to ecological principles. This course will discuss various natural processes that occur in the farm setting to determine the best practices to maintain biodiversity and successful crop production.

ENTM745 Bee Biology and Beekeeping (3 Credits)
Students will be introduced to the anatomy and physiology of the honey bee colony with emphasis on how to use this information to best manage honey bee colonies.

ENTM746 Commercial Beekeeping (3 Credits)
An overview of the various components of the commercial beekeeping industry including migratory pollinators, queen rearing operations and honey producers will be explored.

ENTM747 Pollinator Health (3 Credits)
Students will be given an overview of the importance of insect pollinators and threats to their populations. Emphasis will be placed on managed pollinators, particularly but not exclusively honey bees, where disease mitigation plans will be highlighted.

ENTM751 The History and Culture of Bees and Beekeepers (3 Credits)
An exploration of the history of beekeeping in culture and literature. A comparison of past and present beekeeping practices in different regions of the world will be highlighted.

ENTM756 Insect Diseases and Pathology (3 Credits)
Integrates aspects of biochemistry, molecular biology and evolution theory with ecology using pathogens of insects as a model. The various biotic (living) and abiotic (nonliving) factors that can contribute to plant problems. Explores the direction and goals of innovation in microbial biocontrol as well as the effect of social criticism and considerations of environmental impact on attempts to introduce engineered microorganisms.
Credit Only Granted for: ENTM715 or ENTM756.
Formerly: ENTM715.

ENTM760 Insects in the 21st Century (3 Credits)
This course will explore the influence and impact of major technological advances in genetics, molecular genetics and biotechnology on the study of insects. Topics will include the use of insects as models for studying human biology and diseases; the use of genetics and genetic technologies to augment existing strategies for managing pest insects and well as the invention of novel management approaches; the use of genetics and genetic technologies in the fields of insect conservation, ecology and evolution.

ENTM767 Ecology of Aquatic Insects (3 Credits)
Designed for graduate students and advanced undergraduates with interests in aquatic ecology and the identification of insects inhabiting lentic (e.g., lakes, ponds, wetlands) and lotic (e.g., rivers, streams, creeks) habitats. Because of the widespread occurrence of aquatic species within the hexapods, insects have invaded freshwater habitats many times during their evolution, in some cases multiple times within an order of insects. This evolution has resulted in a diversity of morphological and physiological adaptations. The course will emphasize the biology, ecology, and identification of aquatic insects (and other hexapods), as well as applied aspects of biological monitoring and pest management.
Credit Only Granted for: ENTM667 or ENTM767.

ENTM769 Capstone: Scholarly Paper (3 Credits)
An examination of the current literature on topics related to the field of applied entomology. The Capstone Course provides the opportunity to apply and integrate best practices based on current research in the form of a formal scholarly paper.

ENTM788 Entomological Topics (1-3 Credits)
One lecture or one two-hour laboratory period a week for each credit hour. Lectures, group discussions or laboratory sessions on selected topics such as: aquatic insects, biological control of insects, entomological literature, forest entomology, history of entomology, insect biochemistry, insect embryology, immature insects, insect behavior, insect communication, principles of entomological research.
Prerequisite: Permission of CMNS-Entomology department.

ENTM789 Field Experience in Pest Management (1-6 Credits)
Involvement in practical problems of pest management in field situations. The student will be assigned to a problem area for intensive experience, usually during the summer. A final written report is required for each assignment.
Repeatable to: 6 credits.

ENTM798 Topic Seminar (1 Credit)
Discussion and presentation of current research and literature.
Prerequisite: Permission of CMNS-Entomology department.

ENTM799 Master's Thesis Research (1-6 Credits)

ENTM898 Pre-Candidacy Research (1-8 Credits)

ENTM899 Doctoral Dissertation Research (1-8 Credits)