PLPA - PLANT PATHOLOGY

PLPA 601 Fundamentals of Plant Pathology
Credits 3. 3 Lecture Hours. Increase the understanding of the underlying mechanisms in the disease process; apply that understanding to reduce losses caused by disease; nature of disease causing agents; the outcomes of the interaction between plants and pathogens. Prerequisite: Graduate classification.

PLPA 603 Plant Disease Management
Credits 3. 3 Lecture Hours. Online course designed to provide a strong foundation in the principles and practices of management of plant diseases; analysis of disease cycles and epidemiological parameters to develop and evaluate efficient control strategies and forecasting models. Prerequisites: PLPA 301, or PLPA 601, or equivalent, approval of instructor.

PLPA 604 Plant Bacterial Diseases
Credit 1. 1 Lecture Hour. Bacterial diseases of fruit and vegetable crops, field crops and ornamental plants; structure and function of plant pathogenic bacteria; dissemination of bacterial pathogens and methods of control. Prerequisite: PLPA 301 or PLPA 601.

PLPA 605 Molecular Plant Virology
Credit 1. 1 Lecture Hour. Focus on biology and molecular genetics of plant viruses; historical information and recent developments discussed to illustrate how viruses establish an infection; control measures presented; uses as tools in biotechnology. Prerequisite: PLPA 301 or PLPA 601.

PLPA 606 Fungal Biology
Credit 1. 1 Lecture Hour. Morphological and molecular systematic survey of kingdom of Fungi; emphasis on modern concepts and disease control. Prerequisite: PLPA 301 or PLPA 601.

PLPA 607 Pathogen Strategies
Credit 1. 1 Lecture Hour. Molecular mechanisms that pathogens use to overcome innate immunity of the host plant; molecular events associated with the disease cycles of pathogens; pathogen-host-coevolution; pathogen virulence factors; pathogen countermeasures to plant defense mechanisms. Prerequisites: PLPA 301 or PLPA 601.

PLPA 608 Pathogen Perception and Signaling
Credit 1. 1 Lecture Hour. Molecular and biochemical basis of pathogen recognition; pathogen signaling initiation and transduction in hosts. Prerequisite: PLPA 301 or PLPA 601.

PLPA 609 Defense Hormone Signals
Credits 2. 2 Lecture Hours. Molecular and biochemical mechanisms of plant hormone-mediated defense responses to pathogen invasion; major classes of defense-related proteins, phytolexins and antibacterial secondary metabolites and signal transduction pathways. Prerequisite: Graduate classification.

PLPA 610 Host Plant Resistance
Credits 3. 3 Lecture Hours. Host plant resistance programs from the standpoint of the plant breeder; plant pathologist and entomologist; team taught with each discipline represented; roundtable discussion of assigned readings and lectures. Prerequisite: Approval of instructor. Cross Listing: SCSC 610 and ENTO 610.

PLPA 611 Advanced Plant Pathology
Credits 2. 2 Lecture Hours. Principles and concepts of plant pathogenesis, plant disease epidemiology, and plant disease management at the level of the whole plant and in plant populations; impact and control of significant plant diseases. Prerequisites: Graduate classification.

PLPA 613 Advanced Plant Pathology Laboratory
Credit 1. 3 Lab Hours. A laboratory course designed to demonstrate key components of the host-pathogen interaction and modern diagnostic and research techniques. Concurrent enrollment in PLPA 611 recommended. Prerequisite: PLPA 301 or approval of instructor.

PLPA 616 Methods in Molecular Biology of Plant-Microbe Interactions
Credits 2. 2 Lecture Hours. Concepts and techniques used in molecular plant pathology to study the interactions between hosts and pathogens; focus on understanding the rationale for implementing certain procedures and the theoretical concepts underlying the methodology. Prerequisite: Graduate classification.

PLPA 619 Plant-Associated Microorganisms
Credits 3. 3 Lecture Hours. Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness; uses of microorganisms for improved plant health and sustainable agriculture; microbial roles in food safety and future challenges; discussion of current literature. Prerequisites: Basic plant biology or plant ecology is recommended; microbiology is helpful, but not required. Cross Listing: HORT 619 and MEPS 619.

PLPA 623 Diseases of Field Crops
Credits 3. 2 Lecture Hours. 3 Lab Hours. Fundamental and practical aspects of more important and representative diseases of field crops; plant disease problems peculiar to extensive cultivation methods. Prerequisites: PLPA 301 and PLPA 303.

PLPA 626 Diagnosis of Plant Diseases
Credits 2. 1 Lecture Hour. 3 Lab Hours. Techniques employed in field diagnosis of plant diseases; histological and microbiological studies to verify initial diagnosis. Prerequisite: PLPA 625 or approval of instructor.

PLPA 634 Turfgrass Pathology
Credits 3. 3 Lecture Hours. Recognizing turfgrass problems and understanding biological mechanisms in the disease process; principles of disease management strategies.
PLPA 657 Biotechnology for Biofuels and Bioproducts
Credits 3. 3 Lecture Hours. Biotechnology issues in developing bioenergy as a renewable energy source; emphasis on the three generations of bioenergy and enabling technologies; special topics include recent advances in bioenergy research, government policy, and industrial development. Prerequisite: Graduate classification.

PLPA 681 Seminar
Credit 1. 1 Lecture Hour. Reports and discussions of topics of current interest in plant pathology; review of literature on selected subjects.

PLPA 684 Professional Internship
Credits 1 to 4. 1 to 4 Other Hours. Work-study program for on-the-job training. The student's major professor and job training supervisor will grade the individual. Prerequisite: Graduate classification in Department of Plant Pathology and Microbiology.

PLPA 685 Directed Studies
Credits 1 to 4. 1 to 4 Other Hours. Individual problems or research not pertaining to thesis or dissertation. Prerequisites: PLPA 301 and PLPA 303; approval of instructor.

PLPA 689 Special Topics in...
Credits 1 to 4. 1 to 4 Lecture Hours. Special topics in an identified area of plant pathology. May be repeated for credit. Prerequisite: Approval of instructor.

PLPA 690 Theory of Research
Credit 1. 1 Lecture Hour. Design and development of research theory, inquiry and methodology in various subfields of plant pathology and microbiology; includes examination of modern trends and advances, the analysis of research approaches, and the evaluation of interpretation of data using examples from current research literature. May be repeated for credit. Prerequisite: Approval of instructor.

PLPA 691 Research
Credits 1 to 23. 1 to 23 Other Hours. Original investigations in support of thesis or dissertation.