

DESCRIPTIONS OF GRADUATE COURSES for Plant Pathology

Advanced Mycology (36-28-502) 3Cr.

Principles and methods of fungal classification and nomenclature, morphology, biology, ontogeny and genetics of fungal taxons, descriptions of agriculturally important fungal orders and families, molecular systematics of fungi.

Plant Virology (36-28-504) 3Cr.

History, taxonomy, nomenclature, structure, purification, identification, assay, physicochemical properties, disease induction, transmission, movement, replication, proteins expression, diversity and evolution of plant viruses. immunology, antiserum production and serological methods.

Advanced Nematology (36-28-604) 3Cr.

Classification, anatomy and morphology of nematodes, identification of nematodes up to genus level, use of molecular methods in nematodes identification, biological studies of some important nematodes.

Plant Pathogenic Bacteria (36-28-510) 3Cr.

History, evolution and life, prokaryotic cells, bacterial nutrition and growth requirements, bacterial genetics(chromosome, plasmid and gene), bacterial transformation, conjugation and transduction, bacterial mutation and repairs, microbial control, plant microbe interaction, plant bacterial pathogenesis, taxonomy of plant pathogenic bacteria, plant diseases caused by *Agrobacterium*, *Pectobacterium*, *Pseudomonas*, *Xanthomonas*, gram positive bacteria, fastidious and *Mollicutes*.

Plant Disease Management (36-28-508) 3Cr.

Introduction, plant disease development, progress and spread, type, sources, dissemination and landing of inoculums, environmental effects on disease development, crop destruction and losses. plant disease epidemiology, control methods, exclusion, quarantine, avoidance, altering cultural practices, modifying the environment, genetic of plant disease (immunity, specific and general resistance, tolerance ...), eradication by physical methods, eradication by chemicals (fungicide development and use ...), sanitation, biological control, economy of plant diseases, plant disease forecasting, integrated plant disease control.

Vectors of Plant Pathogens (36-28-536) 2Cr.

Introduction, vector-plant-pathogen interactions, insect vectors and their role in plant pathogens transmission, mechanism of plant pathogens transmission by insects, ecology, mouth parts, alimentary tract and salivary system of insect vectors with emphasis on aphids and hoppers. Fungi, nematodes and parasitic higher plants and their roles in transmission of plant pathogens.

Physiology of Parasitism in Plant Diseases (36-28-522) 3Cr.

Pathogen- host terminology, host and disease development, host recognition and signaling, cell wall lytic enzymes production, toxin production and pathogenicity, morphological, physiological and biochemical host modification during infection, host resistance mechanism and specification.

Physiology of Fungi (36-28-526) 3Cr.

Fungal culture, mechanisms of fungal growth in culture systems, differentiation, dimorphism, effects of temperature, light, oxygen, CO₂ and water on fungal growth, spore germination, fungal respiration and pathways, nutrition and metabolism of carbon and nitrogen, effects of vitamins and physiology of reproduction.

Seminar (9010502-36) 1Cr.

Oral presentation will be made by students on current topics in plant pathology