PPA 395 INDEPENDENT STUDY IN PLANT PATHOLOGY. (3-4)
Independent study in Plant Pathology under the supervision of a faculty member. Prereq: Consent of appropriate instructor.

PPA 400G PRINCIPLES OF PLANT PATHOLOGY. (3)
To present students with the principles of plant pathology. The causes, effects, control and nature of plant diseases will be studied; the laboratory will expose students to common diseases and pathogens discussed in lecture. Emphasis will be given to diseases important in Kentucky. Lecture, two hours; laboratory, two hours. Prereq: One semester of botany (e.g. BIO 351) and microbiology (e.g. BIO 108/109) or consent of instructor.

PPA 410 FOREST PATHOLOGY. (3)
Symptomatology, epidemiology, host-pathogen relations and control of selected diseases of forest trees. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and 107 or BIO 351 or one equivalent semester of botany. (Same as FOR 410.)

PPA 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as BIO/BCH/MI/PLS 601.)

PPA 609 PLANT BIOCHEMISTRY. (3)
The course will consider the chemical constituents of plants (with emphasis on biologically or nutritionally significant compounds unique to plants), their biosynthesis, contribution to key metabolic and defense processes and the regulation of their synthesis. Included will be discussions of photosynthesis, carbohydrates, lipids, isoprenoids and phenylpropanoids, nitrogen fixation, nitrogen and sulfur reduction and assimilation, alkaloids and additional secondary compounds, frontiers in plant biochemistry. Prereq: BCH 607 or equivalent or consent of instructor. (Same as BCH/PLS 609.)

PPA 640 IDENTIFICATION OF PLANT DISEASES. (3)
Recognition and identification of plant diseases and their causes and development. The course is designed to give students practical experience in dealing with a wide array of plant diseases, symptom expressions, causal agents and interactions with environmental factors encountered in the difficult task of identifying plant diseases. May be repeated to a maximum of nine credits. Lecture, one hour; laboratory, six hours. Prereq: PPA 400G or equivalent or consent of instructor. (Same as PLS 640.)

PPA 652 PLANT PATHOGENIC FUNGI. (4)
An advanced study of plant pathogenic fungi. A survey of the major groups of plant pathogenic fungi, including their biology, genetics, and ecology. Lecture emphasis will be the relevance of plant pathogenic fungi to human affairs, lab emphasis will be practical techniques, both traditional and modern, for answering questions of significance to fungi. Lecture, two hours; laboratory, four hours per week. Prereq: BIO 304 or ABT 360, and ABT 460 and PPA 400G, or their equivalents, or consent of the instructor.

PPA 656 PLANT VIROLOGY. (3)
Structure of viruses and viroids that cause plant diseases; replication and genome expression; biology of plant virus infections; ecology, epidemiology and control strategies for virus diseases. Prereq: PPA 400G and BCH 401G or consent of instructor.

PPA 660 PLANT-MICROBE INTERACTIONS I. (3)
The course is intended to introduce the advanced student to the dynamic nature of plant-microbe interactions through diverse considerations of molecular genetic, physiological, biochemical and cytological aspects of plant diseases and symbioses. Prereq: ABT 460, BCH 401G, PPA 400G, or consent of instructor.

PPA 661 PLANT-MICROBE INTERACTIONS II. (3)
Advanced studies of plant-microbe interactions emphasizing molecular genetic, physiological, biochemical and cytological aspects of plant resistance to disease and association with beneficial symbionts. Prereq: ABT 460, BCH 401G, PPA 660, or consent of instructor.
PPA 695 EPIDEMIOLOGY AND MANAGEMENT OF PLANT DISEASES.  (3)
An examination of plant disease development at the population level, and of how management practices influence dynamics of pathogen populations and disease development. The spectrum of disease management practices will be considered, including host plant resistance, cultural practices, chemical and biological control. Technical, social, and economic aspects of plant disease management will be discussed. Lecture, two hours; laboratory, two hours. Prereq: PPA 400G.

PPA 748 MASTER'S THESIS RESEARCH.  (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

PPA 749 DISSERTATION RESEARCH.  (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PPA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.  (1-6)
May be repeated to a maximum of 12 hours.

PPA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.  (0-12)
May be repeated indefinitely.

PPA 770 PLANT PATHOLOGY SEMINAR.  (1)
Reports and discussion of problems and investigations of problems in plant pathology. May be repeated to a maximum of four credits.

PPA 784 SPECIAL PROBLEMS IN PLANT PATHOLOGY.  (1-3)
May be repeated to a maximum of nine credits. Prereq: PPA 400G or equivalent or consent of instructor.

PPA 794 RESEARCH IN PLANT PATHOLOGY.  (1-9)
May be repeated to a maximum of 18 credits. Prereq: PPA 400G or equivalent or consent of instructor.

PPA 799 TEACHING IN PLANT PATHOLOGY.  (1-2)
Discussion of, and experience with, various instructional techniques in plant pathology; effective preparation, presentation and evaluation of lectures and laboratories focusing on plant diseases; practical experience in lectures, teaching laboratories and/or mentoring undergraduate research projects. May be repeated to a maximum of four credits. Prereq: PPA 400G or equivalent.