

Plant Pathology (PLPA)

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Plant Pathology Program Website (<http://plantpathology.uark.edu/>)

Degree Conferred:

M.S. (PLPAMS)
 Ph.D. in Agricultural, Food and Life Sciences with Plant Pathology Concentration (AFLSPH-PLPA)

Primary Areas of Faculty Research: Research areas of the faculty of the Department of Plant Pathology are diverse, including fundamental studies emphasizing fungal, viral, nematode, and bacterial pathogens of plants, as well as mission-oriented research aimed at solving specific disease problems. Research projects are wide-ranging, extending from basic and molecular aspects of disease and pathogenesis to more applied research on disease control methods for the major food and fiber crops in the world. Specific areas include: fungal ecology and genetics, nematology, virology, soil ecology, molecular biology of plant pathogens, biological control of plant diseases, genetics and physiology of parasitism and resistance.

M.S. in Plant Pathology

Prerequisites to the M.S. Degree Program: Specific course prerequisites are not required for admission to the M.S. program. However, a strong undergraduate background in an agricultural, biological, and/or physical science is highly desirable. Deficiencies or prerequisites for advanced courses may be included in the individual student's academic program.

Requirements for the Master of Science Degree: A thesis reporting results of original research and a minimum of 24 semester hours of course work (including 15 semester hours in plant pathology) plus 6 semester hours of thesis credit are required. The student must pass a comprehensive oral examination and successfully defend the thesis upon its completion.

Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degree requirements/#mastersdegreestext>).

Requirements for Ph.D. in AFLS with Plant Pathology Concentration

Prerequisites to Degree Program: A Master of Science degree is desirable. A student with a Bachelor of Science and an exceptional record in academics and/or research may be approved for admission to the Ph.D. program in Agricultural, Food and Life Sciences if the Graduate Student Concentration Admissions Committee of the desired concentration deems them qualified and approval is granted by the

AFLSPH Steering Committee. A student admitted to the University of Arkansas, pursuing an M.S. and in good academic standing may apply to be admitted to the doctoral program and forgo completing the M.S. degree if so approved by the AFLSPH Steering Committee and the AFLSPH Graduate Concentration Admissions Committee. A minimum grade point average of 3.00 (on a 4.00 scale) on previous college-level course work is required.

Admission Requirements for Entry: To be considered for admission, a student must submit a letter of intent, along with the application for admission indicating the desired degree concentration, areas of interest and career goals. Official transcripts of all previous college-level course work must be submitted. Three letters of recommendation are required. These letters should address the character and academic capability of the applicant. Applications will first be reviewed by the AFLSPH Steering Committee which will assign the student to the appropriate Graduate Student Concentration Admissions Committee for review. The Concentration Admissions Committee will make the final determination of admittance into the AFLSPH program and the concentration.

Requirements for Doctor of Philosophy Degree: The Ph.D. program in Agricultural, Food and Life Sciences requires a minimum of 72 credit hours after a Bachelor of Science or Bachelor of Arts degree or a minimum of 42 hours after a Master of Science or Master of Arts degree.

General course requirements for each degree candidate are arranged on an individual basis by the Faculty Adviser, the Graduate Advisory Committee and the candidate in accordance with guidelines of their concentration. Alternate courses may be selected at the discretion of the committee.

All students must complete 6 hours of elective course hours and 2 hours of seminar. One seminar must be a research proposal presentation and the other must be an exit seminar presenting the dissertation research results. All students must complete 18 hours of doctoral dissertation hours. Students entering the doctoral program with only a B.S. or B.A. must also complete an additional 30 hours (to reach the 72 hour post B.S./B.A. requirement). Students must satisfactorily pass written and oral candidacy examinations covering their discipline and supporting areas. These examinations must be completed at least one year before completion of the Ph.D. degree program in Agricultural, Food and Life Sciences. Each candidate must complete a doctoral dissertation on an important research topic in the concentration field. The specific problem and subject of the dissertation is determined by the faculty adviser, the student and the Graduate Advisory Committee. A dissertation title must be submitted to the dean of the Graduate School at least one year before the dissertation defense. Provisional approval of the dissertation must be given by all members of the Graduate Advisory Committee prior to the dissertation defense. Students must pass the oral defense and examination of the dissertation given by the Graduate Advisory Committee. A student cannot be approved for conferral of the doctoral degree until after completion of all coursework, written and oral candidacy exams, the defense passed and dissertation accepted by the Graduate School and an application for the degree has been filed with the Registrar's Office and the fee paid.

In addition to the general requirements for the Ph.D. program in Agricultural, Food and Life Sciences, students in the Plant Pathology concentration must also complete:

PLPA 5303	Advanced Plant Pathology: Host-Pathogen Interactions	3
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PLPA 5313	Advanced Plant Pathology: Ecology and Epidemiology	3
PLPA 5404	Diseases of Economic Crops	4
PLPA 5001	Seminar	1
One course from the following:		3
PLPA 5223	Plant Disease Control	
PLPA 5603	Plant Pathogenic Fungi	
PLPA 6203	Plant Virology	
PLPA 6503		

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.

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.

Tzanetakakis, Ioannis E., Ph.D. (Oregon State University), M.S., B.S. (Agricultural University of Athens, Greece), Professor, 2008, 2016.

Wamishe, Yeshe Andenow, Ph.D. (University of Arkansas) M.S., B.S. (Addis Ababa University, Ethiopia), Associate Professor, 2011, 2016.

Courses

PLPA 5001. Seminar. 1 Hour.

Review of scientific literature and oral reports on current research in plant pathology. Prerequisite: Graduate standing. (Typically offered: Fall and Spring) May be repeated for up to 4 hours of degree credit.

PLPA 502V. Special Problems Research. 1-6 Hour.

Original investigations of assigned problems in plant pathology. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

PLPA 504V. Special Topics. 1-18 Hour.

Lecture topics of current interest not covered in other courses in plant pathology or other related areas. Prerequisite: Graduate standing. (Typically offered: Irregular) May be repeated for up to 18 hours of degree credit.

PLPA 5123. 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 5223.

PLPA 5223. 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. Graduate degree credit will not be given for both PLPA 4223 and PLPA 5223. (Typically offered: Fall)

PLPA 5303. Advanced Plant Pathology: Host-Pathogen Interactions. 3 Hours.

Presentation of important contemporary concepts relative to disease resistance and the physiology, biochemistry, and molecular biology of plant-pathogen interactions. Lecture 3 hours per week. Prerequisite: PLPA 3003 or equivalent and graduate standing. (Typically offered: Spring Odd Years)

PLPA 5313. Advanced Plant Pathology: Ecology and Epidemiology. 3 Hours.

Presentation of important contemporary concepts relative to the ecology and epidemiology of foliar and soil-borne plant pathogens. Lecture 3 hours per week. Prerequisite: PLPA 3003 and graduate standing. (Typically offered: Spring Even Years)

PLPA 5333. 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. Graduate degree credit will not be given for both PLPA 4333 and PLPA 5333. (Typically offered: Fall)

PLPA 5404. Diseases of Economic Crops. 4 Hours.

Diagnosis and management of important diseases of cotton, fruits, rice, trees, soybeans, wheat, and vegetables will be covered in a lecture, laboratory, and field format. Lecture 2 hours, laboratory 4 hours per week. Four 1-day field trips will be involved. Corequisite: Lab component. Prerequisite: PLPA 3003. (Typically offered: Summer)

PLPA 5603. Plant Pathogenic Fungi. 3 Hours.

Plant Pathogenic Fungi is structured as an integrated lecture/laboratory class designed for students that are interested in developing an understanding and appreciation for taxonomy, biology, and ecology of plant pathogenic fungi and related saprophytic fungi. Corequisite: Lab component. Prerequisite: PLPA 3003 or graduate standing. (Typically offered: Fall Odd Years)

PLPA 600V. Master's Thesis. 1-6 Hour.

Master's Thesis. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer) May be repeated for degree credit.

PLPA 6203. Plant Virology. 3 Hours.

Lecture emphasizing discussion of recent advances in plant virology. Laboratory concerned with techniques and equipment used in plant virus studies, including transmission of viruses, characterization utilizing ultracentrifugation, spectrophotometry, electrophoresis, electron microscopy, and serology. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CHEM 5813 or CHEM 5843 or CHEM 6873 or consent of instructor. (Typically offered: Fall Even Years)