Division of Plant and Soil Sciences

Matthew Jenks, Division Director of Plant and Soil Sciences
email: majenks@mail.wvu.edu

Degrees Offered

• Master of Science and Doctor of Philosophy in Genetics & Developmental Biology
• Master of Science in Plant & Soil Sciences
• Doctor of Philosophy in Agricultural Sciences

The Davis College of Agriculture, Natural Resources, and Design offers graduate studies leading to the degree of doctor of philosophy in agricultural sciences. The doctoral program offers two majors: animal & food sciences and plant & soil sciences. The objective of the degree program is to provide doctoral students an opportunity to study and conduct research with faculty in areas of excellence within the college. Students entering this program may select research and classes in ten areas of emphasis: agricultural biochemistry, animal nutrition, animal physiology, production management, crops agronomy, entomology, applied & environmental microbiology, horticulture, plant pathology, and soil sciences.

FACULTY

DIRECTOR
• Matthew A. Jenks - Ph.D.
  Purdue University

PROFESSORS
• Barton S. Baker - Ph.D. (West Virginia University)
  Agronomy, Forage Crops
• Alan R. Biggs - Ph.D. (The Pennsylvania State University)
  Plant Pathology, Tree Fruits
• Gary K. Bissonnette - Ph.D. (Montana State University)
  Applied and Environmental Microbiology, Aquatic Microbiology
• William L. MacDonald - Ph.D. (Iowa State University)
  Plant Pathology, Forest and Shade Tree Diseases
• Louis M. McDonald - Ph.D. (University of Kentucky)
  Soil Science, Soil Chemistry
• Joseph B. Morton - Ph.D. (Montana State University)
  Plant Pathology, Mycorrhizal Interactions, Field Crop Diseases
• Daniel Panaccione - Ph.D. (Purdue State University)
  Plant Pathology, Mycology, Mycotoxins, Molecular Biology
• Alan J. Sextone - Ph.D. (Michigan State)
  Applied and Environmental Microbiology, Soil Microbiology
• Jeffrey Skousen - Ph.D. (Texas A&M University)
  Soil Science, Land Reclamation, Soil and Water Conservation, Watershed Restoration

ASSOCIATE PROFESSORS
• James B. Kotcon - Ph.D. (University of Wisconsin)
  Plant Pathology, Agroecology, Nematology, Organic Farming Practices
• Yong-Lak Park - Ph.D. (Iowa State University)
• Eugenia M. Pena-Yewtukhiw - Ph.D. (University of Kentucky)
  Soil Science
• James A. Thompson - Ph.D. (University of Minnesota)
  Soil Science, Pedology, and Land Use
• Sven Verlinden - Ph.D. (Purdue University)
  Horticulture, Post Harvest Physiology, Molecular Biology

ASSISTANT PROFESSORS
• Vagner A. Benedito - Ph.D. (Wageningen University, The Netherlands)
  Genetics and Developmental Biology; Plant Geoemomics, Functional Genetics, and Plant Physiology
• Thomas Griggs - Ph.D. (Texas Tech University)
  Agronomy, Field and Forage Crops
• Nicole Waterland - Ph.D. (Ohio State University)
  Horticulture, Flower Senescence

ADJUNCT PROFESSORS
• Michael Glenn
• Lee Kass
• Stephen Miller
• Tong-Man Ong
• Thomas van der Swet
• Paul Ziemkiewicz

FACULTY EMERITI
• James W. Amrine, Jr.
• Robert E. Anderson
• John A. Balasko
• John F. Baniecki
• Bradford C. Bearce
• James L. Brooks
• William B. Bryan
• Linda Butler
• Mannon E. Gallegly, Jr.
• Henry W. Hogmire
• L. Morris Ingle
• Robert F. Keefer
• Joginder Nath
• John C. Sencindiver
• Rabindar N. Singh
• Charles B. Sperow, Jr.
• William Van Eck
• Robert J. Young
• Richard K. Zimmerman

Admissions
In order for a student to be admitted to the program, the applicant normally must fulfill the following admission criteria to be considered:

• Possess a baccalaureate degree.
• Have a minimum undergraduate grade point average of 2.75 (3.0 for acceptance as a regular graduate student).
• Have an adequate academic aptitude at the graduate level as measured by the Graduate Record Examination (GRE) or other tests/evidence.
• Provide three letters of reference from persons acquainted with the applicant’s professional work, experience, or academic background.
• Submit a written statement of approximately 500 words indicating the applicant’s goals and objectives relative to receiving a graduate degree.

International students have the additional requirement to submit a TOEFL examination if their native language is not English. Interviews are encouraged but not required.

Curriculum Requirements for M.S.
The M.S. in Plant and Soil Sciences is offered with thesis or non-thesis options. Students entering this program may select research and classes in the following areas of emphases: agronomy, entomology, applied and environmental microbiology, horticulture, plant pathology, and soil sciences. The requirements of this options are described below.
THESIS OPTION

Students enrolled in the M.S. in plant and soil sciences thesis option must complete STAT 511, STAT 512, and three semesters of seminar in their area of emphasis. Other class requirements will be determined by the student’s graduate committee and made a part of the student’s plan of study. This degree requires a minimum of thirty graduate credit hours, six of which may be research.

Each student in the thesis option must develop a plan of study, conduct original research, and prepare a thesis. The plan of study which is to be developed within the first year of study must contain the courses to be taken plus an outline of the research to be conducted. The thesis must be satisfactorily defended in an oral examination given by the student’s graduate committee.

NON-THESIS OPTION

Students enrolled in the M.S. in plant and soil sciences non-thesis option must complete a graduate course in statistics (minimum 3 hr), a graduate course in chemistry or biochemistry (minimum 3 hr), 15 hours of discipline-oriented courses, and three semesters of seminar in their area of emphasis. The specific courses taken to meet these requirements will be determined in consultation with the student’s graduate committee and made a part of the student’s plan of study which will be completed during their first year of study. In addition students will complete a teaching practicum (2 hr) and a vocational experience involving a problem report, internship, or independent study (3 hr). The student must complete an oral examination at the end of their coursework and vocational experience. This degree requires a minimum of thirty-six graduate credit hours, six of which may be research.

Curriculum Requirements for Ph.D.

Core Courses

Doctoral students must satisfactorily complete a set of core courses before they will be admitted to candidacy for the Ph.D. degree. All core courses will be at the 600 or 700 level, except where indicated below. Certain course requirements may be waived if the student has received equivalent training in prior coursework. Additional coursework pertaining to the student’s area of specialization will be determined by the student’s major professor and graduate committee.

Core courses for students in the doctoral program in agricultural sciences will be in the following areas:

- A minimum of six credit-hours must be completed in biology or earth sciences (excluding courses within a student’s major field of study).
- A minimum of six credit-hours must be completed in biochemistry or advanced chemistry (400 level or above), depending on the student’s research concentration.
- A two-semester sequence (minimum of six credits) must be completed in graduate-level statistics plus a course in experimental design, or a two-semester sequence (minimum of six credits) must be completed in graduate-level statistics plus one semester (minimum of three credits) of computer science beyond the introductory level.
- One seminar must be presented during each year or part of year in residence. A final dissertation research seminar will be presented as a college or university-wide seminar.
- Oral and written comprehensive (qualifying) examinations will be administered by the student’s graduate committee before the end of the second year following admission to the program. Satisfactory completion of the comprehensive examinations and core course requirements will admit the student to candidacy for the Ph.D.

Each candidate for the Ph.D. will be expected to meet the following general requirements:

- A minimum of three semesters in residence
- Successful completion of coursework requirements with a grade point average of 3.0 or higher
- Successful completion of comprehensive examinations prepared and evaluated by the student’s graduate committee (Oral and written qualifying exams will be taken before the end of the second year following admission to the program.)
- A dissertation (The dissertation research must be applied toward an approved experiment station project or an approved independently funded research project.)
- Successful oral defense of the dissertation

Although not required, presentation of research results at meetings of a professional society and submission of manuscripts for publication are encouraged.

COURSES

PLSC 547. Applied Wetlands Ecology/Mngmnt. 3 Hours.
The management and ecology of wetland vegetation, soils, hydrology, and wildlife. (Cross listed as WMAN 547 and CE 547.).

PLSC 550. Grants and Grantsmanship. 2 Hours.
A course covering all steps of grant preparation, application, submission and review process.
PLSC 553. Organic Crop Production. 3 Hours.
PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. Principles, practices, history, philosophy and economics of organic farming and gardening. Crop/livestock systems, national and international research on organic production. (Students may not receive credit for both PLSC 453 and PLSC 553).

PLSC 591A-Z. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PLSC 592A-Z. Directed Study. 1-6 Hours.
Directed study, reading, and/or research.

PLSC 593A-Z. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PLSC 595. Independent Study. 1-6 Hours.
Faculty supervised study of topics not available through regular course offerings.

PLSC 592A-Z. Directed Study. 1-6 Hours.
Directed study, reading, and/or research.

PLSC 693A-Z. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PLSC 697. Research. 1-15 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U).

PLSC 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of plant science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U).

PLSC 791A-Z. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PLSC 792A-Z. Directed Study. 1-6 Hours.
Directed study, reading, and/or research.

PLSC 793A-Z. Special Topics. 0-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PLSC 794A-Z. Seminar. 1-6 Hours.
Special seminars arranged for advanced graduate students.

PLSC 795. Independent Study. 1-9 Hours.
Faculty supervised study of topics not available through regular course offerings.

PLSC 796. Graduate Seminar. 1 Hour.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

PLSC 796A. Graduate Seminar. 1 Hour.
PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PLSC 796B. Graduate Seminar. 1 Hour.
PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PLSC 797. Research. 1-15 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U).

PLSC 798. Dissertation. 1-6 Hours.
PR: Consent. This is an optional course for programs that wish to provide formal supervision during the writing of student reports (698), or dissertations (798). Grading is normal.

PLSC 799. Graduate Colloquium. 1-6 Hours.
PR: Consent. For graduate students not seeking coursework credit but who wish to meet residency requirements, use of the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students who are not actively involved in coursework or research are entitled, through enrollment in their department’s 699/799 Graduate Colloquium to consult with graduate faculty, participate in both formal and informal academic activities sponsored by their program, and retain all of the rights and privileges of duly enrolled students. Grading is P/F; colloquium credit may not be counted against credit requirements for masters programs. Registration for one credit of 699/799 graduate colloquium satisfies the University requirement of registration in the semester in which graduation occurs.