Plant and Soil Science

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Degree Offered

• Doctor of Philosophy with a major in Plant and Soil Science

AREA OF EMPHASIS

The doctor of philosophy in plant and soil sciences degree is offered to students who wish to study crops agronomy, entomology, applied and environmental microbiology, horticulture, plant pathology, or soil sciences.

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 minimum score of 213 on the computer based TOEFL examination if their native language is not English. Interviews are encouraged but not required.

A candidate for the Ph.D. degree in Plant and Soil Science must meet all University, College, Division, and Program requirements as outlined in the WVU Graduate catalog.

Program Requirements

All Ph.D. degree candidates are required to follow a planned program of study. The student develops the plan of study during their first year in the program in conjunction with the graduate committee. The plan must be approved by the Director of the Division and the Associate Dean for Academic Affairs of the Davis College.

A minimum cumulative GPA of 3.0 is required in all courses applied toward degree requirements.

Course Requirements as determined by the Plan of Study

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Seminar (AGRN, ENTO, GEN, HORT, PPTH)</td>
<td>5</td>
</tr>
<tr>
<td>Research (AGRN, ENTO, GEN, HORT, PPTH)</td>
<td>6</td>
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<tr>
<td>Candidacy Exam</td>
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<tr>
<td>Dissertation</td>
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<td>Dissertation Defense</td>
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<tr>
<td>Total Hours</td>
<td>11</td>
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* A student must be enrolled in Seminar all semesters in residence.

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.

Major Learning Outcomes

PLANT AND SOIL SCIENCE

1. Students will acquire fundamental knowledge of their area of emphasis and associated fields in plant and soil science.
2. Students will acquire detailed knowledge of their particular subdiscipline or research area, including the scientific literature fundamental to their discipline and the ability to stay current on scientific literature.
3. Students will acquire technical skills in the field or laboratory.
4. Students will develop the ability to communicate in writing and orally about scientific concepts and the results of their research.
5. Students will develop the ability to design, conduct, and interpret the results of experiments.

COURSES

PLSC 547. Applied Wetlands Ecology and Management. 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 560. Plant Biochemistry. 3 Hours.
PR: (CHEM 231 or (CHEM 233 and CHEM 234)) and BIOL 219 or consent. Study of the biochemical processes and biosynthetic pathways leading to the formation of desirable plant products such as those used in food, feed, fiber, fuel and medicinal applications. (Credit cannot be received for both PLSC 460 and PLSC 560).

PLSC 591. 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, 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 692A-Z. Directed Study. 1-6 Hours.
Directed study, reading, and/or research.

PLSC 693A-Z. Special Topics. 0-6 Hours.
A study of contemporary topics selected from recent developments in the field.

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

PLSC 792. 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.
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 796A-B. 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. Thesis or 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.