PLANT AND SOIL SCIENCE PH.D.
All students must meet the Requirements for the Doctor of Philosophy Degree

OVERVIEW
The mission of the Department of Plant and Soil Science is to expand, integrate, and extend the knowledge of crops and environmental quality in plant/soil ecosystems affecting the people of Vermont, the region, and the world. The Department will provide excellence in education, research, and extension that will enable people to produce healthy crops through environmentally, economically, and socially sound practices.

The department offers graduate programs leading to the Doctor of Philosophy (Ph.D.) degree in either Soil Science or Entomology. A dissertation, based on original research, is required for this degree. Completion of the requirements typically takes three years for the Ph.D.

The Department is comprised of faculty representing the disciplines of agronomy, entomology, horticulture, plant pathology, and soil science. Research faculty are involved in studying plant, soil or insect interactions within environments managed for food, fiber, waste utilization, or for landscape purposes. The objectives of these studies are: (1) to develop fundamental knowledge of environmental impacts and interactions and (2) to apply knowledge to better manage systems and promote environmental health. Specifically, departmental projects have included:

- Biological control of insect pests – entomopathogenic fungi
- Integrated pest management (IPM) in greenhouse and field situations
- Constructed wetland systems for water pollution control
- Design and analysis of experiments and surveys
- Field and forage crop management and utilization, forage quality, pasture and grazing management, and pest/weed management
- Analytical procedures for testing soils and environmental samples
- Effects of nitrogen (from acid rain) on forest soils and bog ecosystems
- Interaction between soil manganese oxides and heavy metals
- Nutrient dynamics and management in agricultural systems
- Nematodes and microarthropods as environmental indicators for terrestrial and wetland soils
- Development of sustainable apple production systems
- Evaluation and identification of woody and herbaceous landscape plants adapted to environmental conditions in Vermont/New England
- Diversified horticulture which involves the planning, production, handling, and marketing of horticultural crops with emphasis on multiple, diverse crops produced with environmentally and economically sound techniques.

SPECIFIC REQUIREMENTS
Requirements for Admission to Graduate Studies for the Degree of Doctor of Philosophy
A Master of Science degree in an appropriate agricultural, environmental, biological, or physical science. Satisfactory scores on the Graduate Record Examination, general (aptitude) section.

Students admitted into Master of Science program in the Department may transfer to a PhD program after one year. Students petition the Department’s Graduate Committee.

Minimum Degree Requirements for the Degree of Doctor of Philosophy

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<tr>
<th>Credit hours to be earned in partial fulfillment of the PhD requirements</th>
<th>75</th>
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<tbody>
<tr>
<td>Minimum graded course credits</td>
<td>40</td>
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<tr>
<td>Minimum graded course work credits in Plant and Soil Science and closely related disciplines (e.g. botany, chemistry, forestry, microbiology, biochemistry or geology)</td>
<td>30</td>
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<tr>
<td>Research Credits</td>
<td>20-33</td>
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<td>Satisfactory participation in seminars during residency is required. PhD students are required to enroll in at least two PSS seminar series during their tenure at UVM. These credits count towards the 75-credit hour requirement, but not towards the 40 graded course work credits.</td>
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Doctoral students must take part in the department’s undergraduate teaching program and in outreach activities related to their research efforts. They are expected to teach for two semesters and conduct outreach for two semesters

Comprehensive Examination
Comprehensive examinations are typically taken after two years in residence or at the completion of the majority of all coursework. A written AND oral comprehensive examination must be passed by the candidate at least six months before the dissertation is submitted. It is the student’s responsibility to schedule an examination time that is satisfactory for all committee members. The written comprehensive examination is taken first followed by the oral examination. The comprehensive examination is not the same as an oral dissertation defense and must be satisfactorily passed before defending the dissertation. A unanimous vote of approval by the members of the Studies Committee is required for the student to pass the preliminary oral examination. Approval may be conditional, depending upon completion of specified additional work. If the oral and or written comprehensive examination is not passed, the student is permitted to retake the examination once. Failure to pass the second examination will result in dismissal from the graduate program.

Requirements for Advancement to Candidacy for the Degree of Doctor of Philosophy
Satisfactory completion of two academic years of graduate study in the Department of Plant and Soil Science at the University of Vermont. With the approval of the Dean of the Graduate College and the Department of Plant and Soil Science, up to 24 course work
credits earned during a master's degree may be accepted in partial fulfillment of this requirement.