

PLANT AND SOIL SCIENCE M.S.

All students must meet the Requirements for the Master's Degree

OVERVIEW

The mission of the Department of Agriculture, Landscape, and Environment (formerly Plant and Soil Science) is to expand, integrate, and extend the knowledge of agricultural systems 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 foster environmentally, economically, and socially sound practices.

The department offers graduate programs leading to the Master of Science (M.S.) degree in all fields in plant science, soil science, and landscape design. A thesis, based on original research, is required for this degree. Completion of the requirements normally takes 2.5 years for the M.S. degree.

The department is composed of faculty representing the disciplines of agroecology, agronomy, entomology, horticulture, landscape design, 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 agricultural systems and promote environmental health. Specifically, departmental projects have included:

- Agroecological practices in Vermont and international communities
- Analytical procedures for testing soils and environmental samples
- Biological control of insect pests – entomopathogenic fungi
- Design and analysis of experiments and surveys
- Development of sustainable apple production systems
- 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
- Ecological landscape design
- Effects of nitrogen (from acid rain) on forest soils and bog ecosystems
- Evaluation of new crops and cropping systems
- Evaluation and identification of woody and herbaceous landscape plants adapted to environmental conditions in Vermont/New England
- Field and forage crop management and utilization, forage quality, pasture and grazing management, and pest/weed management
- Green stormwater infrastructure for improving water quality
- Integrated pest management (IPM) in greenhouse and field situations
- Interaction between soil manganese oxides and heavy metals

- Invasive earthworms
- Nematodes and microarthropods as environmental indicators for terrestrial and wetland soils
- Nutrient dynamics and management in agricultural systems

SPECIFIC REQUIREMENTS

Requirements for Admission to Graduate Studies for the Degree of Master of Science

An undergraduate major in an appropriate agricultural, environmental, biological, or physical science. GREs are not required.

Minimum Degree Requirements for the Degree of Master of Science

| Requirement Description | Credits |
|--|---------|
| Total Minimum Requirements | 30 |
| Graduate-level coursework credits that may be eligible for transfer to meet the credit requirements | 9 |
| A minimum of 15 credits taken at UVM in graded coursework in Agriculture, Landscape, and Environment and closely related fields, of which a minimum of 6 must be at the 6000-level | 15-24 |
| Remainder of credits in thesis research and seminar | 6-15 |
| Participation in a departmental seminar is strongly encouraged | 1 |
| All master's students must take part in the department's undergraduate teaching program and document outreach activities | |

Students are required to engage in hypothesis driven scientific research. They are expected to document their research efforts in a thesis. They are expected to defend their research. The defense comprises a seminar open to members of the University community and an oral exam conducted by a committee of faculty.

All students are encouraged to engage in developing and maintaining an Individual Development Plan (IDP) that contains goals and reflections, and proposed actions. These are discussed with the adviser and the studies committee.

Comprehensive Examination

Comprehensive examinations are typically taken after 1 year in residence. The decision on the type of comprehensive exam (written or oral) will be made by the major professor after consultation with the student. The comprehensive examination is not the same as an oral thesis defense and must be satisfactorily passed before defending the thesis.

Requirements for Advancement to Candidacy for the Degree of Master of Science

Satisfactory completion of 1 academic year of graduate study in the Department of Agriculture, Landscape, and Environment and a written or oral comprehensive examination.