

# Department of Plant Sciences and Plant Pathology

## Department Head

Dr. Michael Giroux (<https://plantsciences.montana.edu/directory/faculty/1524119/michael-giroux/>)  
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The department offers advanced study leading to a Master of Science in Plant Sciences and Plant Pathology under either Plan A (thesis) or B (project or professional paper). In addition, a Ph.D. degree is offered in plant sciences with an option in Plant Pathology or Plant Genetics. Supporting minors are also available in each of the degree fields. The department has significant research strengths in the following areas: Plant Breeding and Genetics, Plant Pathology, Plant-microbe Interactions, Mycology, Biocontrol, Biotechnology, Plant Physiology, Plant Systematics, Molecular Evolution, and Biochemistry.

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## Admission

For detailed application information, required test scores, and more, please see the department pages on the graduate application process: <http://plantsciences.montana.edu/studentinfo/grad/index.html>. (<http://plantsciences.montana.edu/studentinfo/grad/>) Students seeking admission to graduate status must hold a BS degree and have a record of high scholarship in areas closely related to the plant sciences.

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## Plant Sciences

Graduate students majoring in this field may obtain a Master of Science degree in plant science or a Ph.D. degree in plant science with a plant genetics option. Areas of concentration include plant breeding and genetics, plant molecular genetics and biotechnology, physiological genetics, plant systematics, and population genetics.

## Plant Pathology

Graduate students majoring in this field may obtain a Master of Science in Plant Pathology or a Ph.D. in plant science with a plant pathology option. Areas of concentration include biocontrol, mycology, plant-pathogen interactions, biochemistry, and molecular genetics of plant disease and virology.

## Masters

- Plant Pathology
- Plant Sciences

## Doctorate

- Plant Sciences - Plant Pathology Option
  - Plant Sciences - Plant Genetics Option
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## Departmental Facilities (<https://plantsciences.montana.edu/facilities.html>)

The department is housed in Leon Johnson Hall and the Plant BioSciences Facility on the Bozeman campus. Other facilities/laboratories where research is performed for the growers and producers in Montana:

- Cereal Quality Lab (<https://plantsciences.montana.edu/cqlab/>) – performs research on the end-use properties of cereal grains
- Horticulture Farm (<https://agresearch.montana.edu/campusfarms/>) – provides cultivated acreage for teaching and research programs
- Montana Entomology Collection (<http://mtent.org>) - contains an estimated 2 million+ curated North American (north of Mexico) specimens of invertebrates
- Montana Fungal Collection (<https://www.montana.edu/mlavin/herb/>) - 13,000 fungal specimens dating from 1897, mostly from Montana and the surrounding region
- Montana Seed Growers Association (<https://mtseedgrowers.org/>) - a non-profit organization that is responsible for certifying seed for all crops except potatoes and mint grown in the State of Montana
- Montana State Seed Potato Testing Lab (<http://www.montanaspud.org/>) - provides disease free seed stock to Montana potato producers
- Montana State Seed Testing Lab (<https://plantsciences.montana.edu/seedlab/>) - tests seed samples for farmers, seedsmen, the Montana Seed Growers Association, the Montana Department of Agriculture, and the seed industry
- MSU Herbarium (<https://www.montana.edu/mlavin/herb/%20/>) - over 85,000 herbarium specimens representing all the plant species known to grow in Montana
- Plant Growth Center (<https://ag.montana.edu/pgc/>) - a 60,000 square foot teaching and research facility that includes greenhouses, growth rooms, growth chambers, isolation units, and containment facilities
- Post Research Farm (<https://agresearch.montana.edu/campusfarms/>) - a 300-acre site dedicated to plant breeding and plant and soil research activities
- Regional Pulse Crops Diagnostic Lab (<https://plantsciences.montana.edu/pulsecropdiagnosticlab/>) – dedicated exclusively to pulse crop pathogen diagnostics
- Towne's Harvest Garden (<https://townesharvest.montana.edu/>) – a three-acre diversified vegetable and educational research farm supporting a student-run, community-supported agriculture program

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## Student Academic Coordinator

For general questions regarding the graduate program, please contact:

Jennifer DeChaine  
Plant Biosciences Building 119  
406-994-7610  
jennifer.dechaine@montana.edu

## Required Courses

There are no set course requirements for Plant Sciences degree programs. Course requirements are set by the student's graduate committee. However, all students must participate regularly in the PSPP seminar series, which includes presenting a research seminar once a year for each academic year enrolled in graduate school. To facilitate this seminar participation and presentation requirement, graduate students can enroll in PSPP 594 (<https://catalog.montana.edu/search/?P=PSPP%20594>) Seminar (1 credit), offered every Fall and Spring semester.

The PSPP Department requires a minimum of thirty (30) credits for a master's degree, both thesis and non-thesis (Plan A, Plan B, Plan C). For a master's degree with a thesis, the PSPP Department combines the required comprehensive examination and thesis defense to offer them simultaneously. For additional master's degree requirements, see The Graduate School web page [http://www.montana.edu/gradschool/policy/degreq\\_masters.html](http://www.montana.edu/gradschool/policy/degreq_masters.html).

The PSPP Department requires a minimum of thirty (60) credits for a PhD degree, of which eighteen (18) to twenty-eight (28) must be dissertation credits. A maximum of thirty (30) credits from a previously earned master's degree (from MSU or another accredited University) may be applied toward the sixty (60) credit minimum required for the doctoral degree. Doctoral students who have previously earned a master's degree must take at least twelve (12) coursework credits and eighteen (18) to twenty-eight (28) dissertation (690) credits beyond the master's degree credits. For a PhD degree, the PSPP Department combines the required comprehensive examination and thesis defense to offer them simultaneously. For additional PhD degree requirements, see The Graduate School web page [http://www.montana.edu/gradschool/policy/degreq\\_doctoral.html](http://www.montana.edu/gradschool/policy/degreq_doctoral.html).

### **Degrees Offered**

- M.S. in Plant Pathology (<https://catalog.montana.edu/graduate/agriculture/plant-sciences-plant-pathology/ms-plant-pathology/>)
- M.S. in Plant Sciences (<https://catalog.montana.edu/graduate/agriculture/plant-sciences-plant-pathology/ms-plant-sciences/>)
- Ph.D. in Plant Sciences (<https://catalog.montana.edu/graduate/agriculture/plant-sciences-plant-pathology/phd-plant-sciences/>)

### **Certificates Offered**

- Crop Breeding & Biotechnology (<https://catalog.montana.edu/graduate/agriculture/plant-sciences-plant-pathology/cert-crop-breeding-biotechnology/>)
- Plant Disease (<https://catalog.montana.edu/graduate/agriculture/plant-sciences-plant-pathology/cert-plant-disease/>)