

# Department of Plant Sciences and Plant Pathology

The Plant Sciences and Plant Pathology Department at Montana State University offers a rich, diverse curriculum taught by award-winning researchers and supplemented by world-class facilities. As a student of Plant Science and Plant Pathology, you will have the opportunity to influence the future of crop production, play an essential role in maintaining the nation's food supply, develop new technology to manage crop pests, and study the genetics of crops to influence their management and quality.



## CURRICULUM OPTIONS

### B.S. Biotechnology

The Bachelor of Science in Biotechnology is an interdisciplinary degree, where students will pursue a basic science curriculum the first two years and then choose an area of emphasis in plant, animal or microbial systems for the junior/senior years.

### B.S. Plant Science

Plant Science involves a thorough background in the liberal arts and a comprehensive understanding of the scientific principles underlying plant sciences. Modern plant science encompasses many areas, impacting such diverse interests as agriculture, biotechnology, and recreational land management.

### Crop Science Option

Continued increases in food and fiber crop production are essential for the future of humankind. Yet increased production places increased pressure on our soil, water, and other finite resources. The challenge for crop scientists is to implement crop and soil management schemes that maintain and increase production, but at the same

time conserve our soil and water resources and preserve the delicate balance in the agroecosystem.

### Plant Biology Option

Plant biology provides a broad education in the plant sciences. The expertise of the Plant Sciences faculty provides an opportunity to focus at the cellular and molecular level, however opportunities also exist for emphasis in plant ecology and systematics. Course requirements include beginning and advanced courses in biology, microbiology, biochemistry, physiology, genetics, plant development, ecology, and systematics.

### B.S. Environmental Horticulture

Horticulture is the science and art of growing and maintaining plants for food and for the enjoyment and improvement of the human environment. Its application through research has led to improved varieties of plants to benefit our daily lives.

### Environmental Horticulture Science Option

The Environmental Horticulture option involves coursework in biology and chemistry and specialized courses such as plant

materials, plant physiology, commercial plant production, plant propagation, turfgrass management and horticulture capstone and landscape management.

### Landscape Design Option

The Landscape Design option will prepare students to solve aesthetic and functional landscape problems. This blend of art and science which utilizes both technical and creative studies leads to problem-solving skills for beautiful, functional and efficient landscape design solutions. Emphasis is placed on utilization of plant materials to solve specific site problems.

### B.S. Sustainable Foods and Bioenergy Systems, Sustainable Crop Production Option

The curriculum is designed to acquaint students with a broad range of principles and issues in sustainable crop production, including soil fertility, plant physiology, greenhouse production, pest management, and small business management. Both large- and small-scale food and bioenergy production systems are examined.



## Specialized Areas of Study/Minors

- Entomology
- Environmental Horticulture
- Genetics

## Graduate Programs:

- M.S. Plant Sciences
- M.S. Plant Pathology
- Ph.D. Plant Sciences

## What can I do with my degree?

- Agronomist
- Botanist
- Environmental Scientist
- Research Assistant
- Science Teacher
- Naturalist
- Plant Geneticist
- Conservationist
- Crop scientist
- Horticulturists
- Landscape designer
- Consultant

## For additional information:

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P.O. Box 173150  
Bozeman, MT 59717-3150

Tel: (406) 994-5171

Fax: (406) 994-7600

Location: Plant BioScience Building

## CAREERS WITH A DEGREE IN PLANT SCIENCES AND PLANT PATHOLOGY

Plant scientists play an important role in maintaining the nation's food supply by ensuring productivity and food safety. They look for ways to improve crop yield with less labor, control pests and weeds more safely and effectively, and conserve soil and water. Plant scientists not only help increase productivity, but also study ways to improve the nutritional value of crops and the quality of seed, often through biotechnology. Some plant scientists study the breeding, physiology, and management of crops and use genetic engineering to develop crops that are resistant to pests and to drought. They also develop new technologies to control or eliminate pests and prevent their spread in environmentally safe ways.

Graduates in Plant Science find careers in farming and ranching; as crop production specialists; in pest management; in seed, fertilizer, and chemical industries;

Cooperative Extension Service and with government agencies such as the Natural Resource Conservation Service. Graduates are prepared for graduate school, and a variety of academic and professional careers.

Environmental Horticulture graduates are employed by landscape nurseries, landscape contractors, and planning agencies; others become self-employed as landscape designers and contractors. Graduates in Sustainable Crop Production are prepared for careers in agricultural production, community nutrition, community food security, public health, Extension education, food and nutrition policy and education, food enterprise, culinary arts and management, community supported agriculture, food processing, food marketing, retailing and distribution.

## RESOURCES AND FACILITIES

### Horticulture Farm and Towne's Harvest Garden

Towne's Harvest Garden is a 3-acre diversified vegetable plot located at the MSU Horticulture Farm. The Towne's Harvest Garden is a project of the MSU Friends of Local Foods Student Organization, an organization formed to bring a diverse group of students and faculty together to raise

awareness about local foods and encourage sustainable lifestyles on campus and in the community.

### Plant Growth Center

Featuring greenhouses, growth chambers, plant pathology isolation units and quarantine facilities, the 60,000 square foot Plant Growth Center is available to researchers and students.



## ACCOMPLISHMENTS & DISTINCTIONS

PSPP undergraduate and graduate students regularly receive campus awards and national notoriety for research achievements and college club activities.

Departmental research and teaching faculty are a consistent presence in the international

science community; they also travel, teach and publish with international colleagues and organizations.

Many departmental research practicums include hands-on participation in our many facilities.

