The Department of Plant Pathology offers graduate study leading to the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees. Advanced degrees may involve specialized training in the following areas: host-parasite genetics, molecular biology and genomics, epidemiology, soil and seed-borne diseases, microbial ecology, and integrated disease management. Student research and academic programs are tailored to individual needs and interests.

Five graduate faculty members are housed in the Northern Crops Science Laboratory located on campus. This relationship provides additional opportunities for research and consultation.

**Admission Requirements**

The Department of Plant Pathology graduate program is open to all qualified graduates of universities and colleges of recognized standing. In addition to the Graduate College requirements (http://catalog.ndsu.edu/graduate/admission-information/), the applicant must have adequate preparation in Plant Pathology or Biology.

**Financial Assistance**

Research assistantships and part-time positions are available in the department. Applicants are considered on the basis of scholarship and potential to undertake advanced study and research. To be considered for an assistantship, a completed Graduate College application, official transcripts, and three letters of reference must be submitted. In addition to these materials, international applicants must also submit TOEFL scores. These items must be submitted to the Graduate College.

**Master of Science**

Completion of a Master of Science degree is dependent on the completion of 30 semester hours in Plant Pathology or approved courses from related departments. A minimum of 10 credits must reflect research in the desired area.

**Doctor of Philosophy**

Completion of a Doctor of Philosophy degree is dependent on the completion of 60 semester hours beyond the M.S. degree or 90 credits post-baccalaureate. Courses may include Plant Pathology or approved courses from related departments. A minimum of 10 credits must reflect research in the desired area. Courses focusing on plant science, agronomy, plant breeding, microbiology, entomology and others are offered.

<table>
<thead>
<tr>
<th>Thomas Baldwin, Ph.D.</th>
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<tr>
<td>University of Georgia, 2013</td>
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</table>

Research Interests: Barley-Pathogen Interactions, RNA-Interference, Fungal Genetics, Fusarium head blight

<table>
<thead>
<tr>
<th>Luis del Rio, Ph.D.</th>
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<tr>
<td>Iowa State University, 1999</td>
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Research Interests: Epidemiology of Plant Diseases, Chemical and Biological Control of Fungal Diseases, Management of Canola Diseases

Malaika Ebert, Ph.D.
Wageningen University & Research, 2018
Research Interests: Dry Bean and Pulse Crop Pathogens, Molecular Host-Microbe Interactions, Effectors, Secondary Metabolites, Proteins

Andrew Friskop, Ph.D.
North Dakota State University, 2013
Research interests: Extension Plant Pathology, Chemical Control, Corn Diseases, Small Grain Diseases, IPM

Upinder Gill, Ph.D.
Washington State University, 2012
Research Interests: Management of Rust Diseases of Wheat and Other Field Crops, Genetics and Genomics of Host-Pathogen Interactions

Mohamed Khan, Ph.D.
Clemson University, 1998
Research Interests: Sugar Beet Management

Janet J. Knodel, Ph.D.
North Dakota State University, 2005
Research Interests: Extension Entomology, IPM of Field Crop Insects, Insect-Disease Surveys, Emerging Insects, Chemical Control

Zhaohui Liu, Ph.D.
North Dakota State University, 2006
Research interests: Molecular Biology and Genetics of Host-Pathogen Interactions in Wheat Leaf Spot Diseases

Samuel Markell, Ph.D.
University of Arkansas, 2007
Research Interests: Extension Plant Pathology, Rust Diseases, IPM, Emerging Diseases, Chemical Control

Steven W. Meinhardt, Ph.D.
University of Illinois, 1984
Research Interests: Structure/Function Relationships in Enzymes and Toxins

Jack B. Rasmussen, Ph.D.
Michigan State University, 1987
Research Interests: Molecular Biology and Role in Disease of Pathogen-Produced Toxins, Genetics of Resistance to Cereal Rust Diseases

Gary A. Secor, Ph.D.
University of California-Davis, 1978
Research Interests: Potato Diseases Management and Control, Biotechnology for Cultivar Improvement

Julie Sherman Pasche, Ph.D.
North Dakota State University, 2012
Research Interests: Potato Disease Management, Fungicide Efficacy and Resistance Management, Pathogen Detection and Diversity

Guiping Yan, Ph.D.
Washington State University, 2006
Research Interests: Detection, Biology and Management of Soybean Cyst Nematode and Other Plant-Parasitic Nematodes in Field Crops

Shaobin Zhong, Ph.D.
North Dakota State University, 2000
Research Interests: Fusarium Head Blight of Wheat, Fungal Biology and Genetics, Genomics and Functional Genomics of Host-Pathogen Interaction in Cereal Crops

Adjunct

Melvin Bolton, Ph.D.
USDA/ARS
North Dakota State University, 2006

Timothy L. Friesen, Ph.D.
USDA/ARS
North Dakota State University, 2001
Research Interests: Host Parasite Interactions of Foliar Diseases of Cereals
Michael C. Edwards, Ph.D.
USDA/ARS
Cornell University, 1983
Research Interests: Virology, Cereal Virus Diseases

Rubella Goswami, Ph.D.
University of Minnesota, 2005
Research Interests: Pathogen Interactions, Fungal Biology, Molecular Biology and Genomics

Thomas J. Gulya, Ph.D.
USDA/ARS
Iowa State University, 1978
Research Interests: Downy Mildew, Rust, Phomopsis Stem Canker, Sclerotinia Wilt of Sunflower

Michael Wunsch, Ph.D.
Cornell University, 2010
Research Interests: Varietal Disease Resistance, Fungicide Efficacy and Timing, and Use of Cropping Systems t

Berlin D. Nelson, Ph.D.
Washington State University, 1979
Research Interests: Oilseed Diseases, Biological Control, Mycology