

# Application



Academic unit:

**Plant Pathology**

Program designation:

**Graduate**

Program name with degree designation:

**Plant Pathology - MS & PhD**

Submitter (first and last name):

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# Teaching, Learning, and Assessment

# Learning Outcomes

## Impact Statement

### Title

*Plant Pathology Graduate Program:  
Enhancing the Curriculum with Depth and Breadth*

### Collaborators

Department of Plant Pathology, faculty, academic staff and students

### Summary

The Plant Pathology M.S./Ph.D Graduate Program is implementing curriculum changes (effective Autumn 2018) to provide more depth in course content and give students additional flexibility in their course plans. We added more hands-on training with a new laboratory course sequence to accompany lecture courses in bacteriology, plant pathogenic mycology, virology and nematology. We also added a new course in plant pathogenic fungi to enhance coverage of this important area. Program modifications were driven by graduate program assessment, course evaluations, and feedback from students, faculty, and academic staff. These changes will enhance the education and training we provide towards meeting the program's Learning Goals and Learning Outcomes.

### Situation

Our graduate program's Learning Goals (LGs) and Learning Outcomes (LOs) were established to provide students with a solid foundation in plant pathology/plant health management, train students to become critical thinkers and effective communicators, and become successful professionals in their careers. We established assessment plans to evaluate student learning with graduate exam rubrics, embedded test questions and other measures. In our program evaluations, it was clear that while we are achieving expected outcomes, it was at the price of inefficiencies in classroom time, with little time for hands-on learning. A common concern expressed by students in exit interviews and course evaluations was that multiple plant pathology courses were covering similar material, without achieving the depth desired in a graduate curriculum. Changes were needed to more streamline the curriculum, provide more in-depth graduate course content, and offer more flexibility to meet student's needs.



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## Outcome

The Plant Pathology faculty, academic staff and graduate students convened focus groups and re-envisioning sessions, as well as two half-day retreats that included graduate students from Columbus and Wooster. Initial meetings in 2015 focused on discussion of LGs and LOs, followed by more in-depth discussion on existing courses, new courses and curriculum requirements. Many of the proposed ideas involved changes to teaching assignments and required extensive discussion with faculty. By Autumn 2016, changes to the graduate curriculum took shape. Curriculum changes included the removal of some course requirements and addition of new courses. The M.S./Ph.D. program changes, course change requests, and new course requests were submitted to the CFAES Academic Affairs Committee in January 2017, with unanimous support from the plant pathology faculty. The result is a new curriculum that we feel streamlines the curriculum and fulfills our educational mission.

## Impact

The Plant Pathology Graduate Program's assessment plan provides a solid framework to evaluate LGs and LOs. Our plan has become a model for other graduate programs and we provide leadership in the Graduate School and University for assessment of teaching and learning.

Curriculum and course changes will allow for more depth in content and greater flexibility in course plans based on student interests. In the revised curriculum, M.S. and Ph.D. students will be required to complete pathogen courses (plant virology/bacteriology/nematology); Plant Disease Management; Plant Disease Diagnosis (2-wk course); statistics; and an Advanced Plant Pathology Lab course. Students will also select at least one of the following courses: Science of Fungi: Mycology Lecture/Lab, or a new Plant Pathogenic Fungi course designed to provide specialized content on fungal pathogens of plants. New graduate students with no previous plant pathology coursework will be asked to review online General Plant Pathology course materials prior to their first semester. Ph.D. students will be required to take Molecular Bases of Plant Host-Microbe Interactions, which covers topics deemed essential for students today. Ph.D. students also select 2-3 additional courses to round out their course plan. Course changes can be approved by a student's advisory committee. These changes will provide the training and experience to more effectively achieve LGs and LOs as we educate future generations of plant pathologists.

Teaching, Learning, and Assessment

# Learning Outcomes

Impact Statement

