

# Plant Pathology (PPTH)

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**PPTH 194. Individual Study. 1-5 Credits.**

**PPTH 196. Field Experience. 1-15 Credits.**

**PPTH 199. Special Topics. 1-5 Credits.**

**PPTH 291. Seminar. 1-5 Credits.**

**PPTH 292. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

**PPTH 294. Individual Study. 1-5 Credits.**

**PPTH 299. Special Topics. 1-5 Credits.**

**PPTH 324. Introductory Plant Pathology. 3 Credits.**

Etiology, symptomatology and control of representative plant diseases and demonstrations. 2 lectures, 1 laboratory. F.

**PPTH 379. Global Seminar. 1-6 Credits.**

NDSU instructed experience or field study in a foreign country. Conducted in English for residence credit. Pre-requisite: Prior approval by International Student and Study Abroad Services and major department. May be repeated. Standard Grading.

**PPTH 391. Seminar. 1-5 Credits.**

**PPTH 392. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

**PPTH 394. Individual Study. 1-5 Credits.**

**PPTH 399. Special Topics. 1-5 Credits.**

**PPTH 454. Diseases Of Field and Forage Crops. 3 Credits.**

Etiology, symptomology, control, and importance of field and forage crop diseases. 2 lectures, 1 laboratory. Prereq: PPTH 324. S (even years) {Also offered for graduate credit - see PPTH 654.}.

**PPTH 455. Plant Disease Management. 3 Credits.**

Diagnosis and control of horticultural crop diseases. 2 lectures, 1 laboratory. Prereq: PPTH 324. S (odd years) {Also offered for graduate credit - see PPTH 655.}.

**PPTH 457. Landscape Plant Pathology. 3 Credits.**

Tree and turfgrass pathology with emphasis on disease identification and management strategies for a variety of settings. Two lectures and a 2-hour lab. Prereq: PPTH 324. S (odd years). {offered at the graduate level as PPTH 657}.

**PPTH 460. Fungal Biology. 3 Credits.**

Fungal ecology, morphology, genetics, physiology, taxonomy, and relevance to humans. 2 lectures, 1 laboratory. Prereq: BIOL 150, PPTH 324. F (even years) {Also offered for graduate credit - see PPTH 660.}.

**PPTH 491. Seminar. 1-5 Credits.**

**PPTH 492. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

**PPTH 494. Individual Study. 1-5 Credits.**

**PPTH 496. Field Experience. 1-15 Credits.**

**PPTH 499. Special Topics. 1-5 Credits.**

**PPTH 654. Diseases Of Field and Forage Crops. 3 Credits.**

Etiology, symptomology, control, and importance of field and forage crop diseases. 2 lectures, 1 laboratory. S (even years) {Also offered for undergraduate credit - see PPTH 454.}.

**PPTH 655. Plant Disease Management. 3 Credits.**

Diagnosis and control of horticultural crop diseases. 2 lectures, 1 laboratory. S (odd years) {Also offered for undergraduate credit - see PPTH 455.}.

**PPTH 657. Landscape Plant Pathology. 3 Credits.**

Tree and turfgrass pathology with emphasis on disease identification and management strategies for a variety of settings. Two lectures and a 2-hour lab. S (odd years). {offered at the undergraduate level as PPTH 457}.

**PPTH 660. Fungal Biology. 3 Credits.**

Fungal ecology, morphology, genetics, physiology, taxonomy, and relevance to humans. 2 lectures, 1 laboratory. F (even years) {Also offered for undergraduate credit - see PPTH 460}.

**PPTH 690. Graduate Seminar. 1-3 Credits.**

**PPTH 695. Field Experience. 1-15 Credits.**

**PPTH 696. Special Topics. 1-5 Credits.**

**PPTH 751. Physiology Of Plant Disease. 3 Credits.**

Infection, penetration, recognition, nutrient transfer, toxins, photosynthesis, and physiological materials. Use of tools, equipment, and supplies used in the industry and application of basic design styles, holiday designs, and displays. 1 lecture, 1 two-hour laboratory. S (odd years).

**PPTH 752. Plant Nematology. 3 Credits.**

Nematode morphology, classification, biology, molecular identification and quantification; interaction of nematodes with other pathogens, molecular mechanisms of plant-nematode interactions, and nematode disease management. 2 lectures, 1 two-hour laboratory. F (odd years).

**PPTH 754. Plant Disease Epidemiology. 3 Credits.**

Temporal and spatial dynamics of diseases and causative pathogens in plant populations. 2 lectures, 1 laboratory. F (even years).

**PPTH 755. Population Biology of Plant Pathogens. 3 Credits.**

Discussion of the biological processes that affect plant pathogens populations and communities in natural and agricultural settings and how these processes affect disease development and their control.

**PPTH 756. Fungicides: Development, Modes of Action, and Development of Resistance. 3 Credits.**

The course will provide an understanding of fungicides, their mode of action, the development of resistance, and resistance management strategies.

**PPTH 757. Advanced Techniques in Plant Pathology. 3 Credits.**

Review of traditional and latest tools and techniques available to conduct research in plant pathology. Two lectures.

**PPTH 758. Bacterial, Nematode and Viral Diseases of Plants. 4 Credits.**

Biology, epidemiology, and management of plant diseases caused by bacteria, nematodes and viruses.

**PPTH 759. Host-Parasite Genetics. 3 Credits.**

Host-parasite genetics including genetics of plant and pathogens and gene-for-gene relationships. 3 lectures. S (even years).

**PPTH 760. Fungal Genetics. 4 Credits.**

Biology and genetics of fungi. Emphasis on genes, genomes, and genetic control of growth and development, physiology, and etiology of fungi. 2 lectures, 2 laboratories. F (odd years).

**PPTH 767. Effectoromics. 3 Credits.**

Introduction and evolution of microbe effector research from changes in immune response models to modern effector identification techniques.

**PPTH 790. Graduate Seminar. 1-3 Credits.**

**PPTH 791. Temporary/Trial Topics. 1-5 Credits.**

**PPTH 792. Graduate Teaching Experience. 1-6 Credits.**

**PPTH 793. Individual Study/Tutorial. 1-5 Credits.**

**PPTH 794. Practicum/Internship. 1-10 Credits.**

**PPTH 795. Field Experience. 1-15 Credits.**

**PPTH 796. Special Topics. 1-5 Credits.**

**PPTH 797. Master's Paper. 1-3 Credits.**

**PPTH 798. Master's Thesis. 1-10 Credits.**

**PPTH 899. Doctoral Dissertation. 1-15 Credits.**