

PLANT PATHOLOGY (PL PATH)

PL PATH/BOTANY 123 – PLANTS, PARASITES, AND PEOPLE

3 credits.

Explores the interaction between society and plant-associated microbes. Topics include: the Irish potato famine, pesticides in current agriculture, role of economics and consumer preference in crop disease management and the release of genetically engineered organisms.

Requisites: None

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2025

PL PATH/ZOOLOGY 154 – TINY EARTH: ANTIBIOTIC DISCOVERY RESEARCH

2 credits.

Learn basic methodology in scientific research and discovery, including laboratory techniques, quantitative reasoning, scientific communication, and collaboration. Gain hands-on laboratory experience working with microbes to test original hypotheses concerning the discovery of potential antibiotic compounds while addressing the world's antibiotic resistance crisis by contributing data to the global "Tiny Earth" network of researchers to advance potential drug development. Tiny Earth seeks to encourage students to pursue careers in science through real-world, applied research experiences and aims to address a worldwide health threat of the diminishing supply of effective antibiotics by "student-sourcing antibiotic discovery." Concurrent enrollment in BIOLOGY/BOTANY/ZOOLOGY 152 is required for permission to enroll.

Requisites: Consent of instructor

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Demonstrate basic knowledge of microbes and antibiotic resistance by (1) sufficiently explaining the process of natural selection with the accurate use of terminology, (2) describing morphological and physiological variation in bacteria and how this relates to bacterial taxonomy, and (3) summarizing mechanisms of the spread of antibiotic resistance genes across the microbial world.

Audience: Undergraduate

2. Demonstrate scientific competency as shown by their ability to (1) propose an original research question and hypothesis, (2) develop a biological rationale for the hypothesis, (3) select appropriate protocols to test the hypothesis, and (4) perform the research collaboratively with group members in a cordial and respectful way.

Audience: Undergraduate

3. Demonstrate proper techniques in basic micro- and molecular biology by (1) pipetting fluids with volume accuracy, (2) plating microbes via spread, patch, and streak methods, (3) using proper sterile technique, and (4) performing protocols for polymerase chain reaction (PCR), gel electrophoresis, and BLAST analysis for DNA amplification and sequencing.

Audience: Undergraduate

4. Demonstrate quantitative reasoning as shown by their ability to (1) select an appropriate statistical analysis for a given data set and research question, (2) carry out the statistical analysis using a vetted program (e.g. online statistical calculator tool such as Vassarstats.com), and (3) accurately interpret and the translate the results into a meaningful statement.

Audience: Undergraduate

5. Demonstrate scientific communication as shown by their ability to (1) clearly express a hypothesis, general methodology, and results in formal writing, (2) accurately visualize numerical results in the form of graph, (3) satisfactorily deliver aspects of the research project and findings via oral presentation and scientific poster presentation.

Audience: Undergraduate

PL PATH/HORT 261 – SUSTAINABLE TURFGRASS USE AND MANAGEMENT

2 credits.

Sustainable use and management of turfgrass landscapes in urban and suburban environments, including home lawns, golf courses, and sports fields. Focus is on creating sustainable and attractive turfgrass landscapes through proper species selection, use of slow-release or organic fertilizer practices, and minimizing the use of pesticides and supplemental irrigation.

Requisites: None

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Describe how turf is used in urban and suburban communities

Audience: Undergraduate

2. Identify the positive environmental impacts of using turfgrass

Audience: Undergraduate

3. Identify the negative environmental impacts of turfgrass management

Audience: Undergraduate

4. Identify the 3 major pest groups in turfgrass and describe sustainable management strategies for each

Audience: Undergraduate

PL PATH/HORT 262 – TURFGRASS MANAGEMENT LABORATORY

1 credit.

Hands-on turf establishment, cool- and warm-season grass, seed and weed identification, chemical application, and turf cultivation techniques and equipment use, plus field trips to major league sport facilities and golf courses.

Requisites: PL PATH/HORT 261 or concurrent enrollment

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Identify the species of turfgrass commonly used in Wisconsin and the conditions they are most suited to.

Audience: Undergraduate

2. Describe management strategies that can be implemented to increase the sustainability of turfgrass management.

Audience: Undergraduate

3. List the most common pests observed on Wisconsin turfgrass and describe strategies for their sustainable management.

Audience: Undergraduate

4. Calculate the amount of seed needed to properly establish a turfgrass site, the amount of fertilizer needed to adequately fertilize turfgrass, and the concentration of pesticides needed to suppress common turfgrass pests.

Audience: Undergraduate

PL PATH 289 – HONORS INDEPENDENT STUDY

1-2 credits.

Research work for Honors students under direct guidance of a faculty member in an area of Plant Pathology. Students are responsible for arranging the work and credits with the supervising instructor.

Requisites: Consent of instructor

Course Designation: Honors - Honors Only Courses (H)

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2000

PL PATH 299 – INDEPENDENT STUDY

1-3 credits.

Research work for students under direct guidance of a faculty member in an area of Plant Pathology. Students are responsible for arranging the work and credits with the supervising instructor.

Requisites: Consent of instructor

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2025

PL PATH 300 – INTRODUCTION TO PLANT PATHOLOGY

4 credits.

Economic importance, symptoms, causes, and methods of control of representative plant diseases.

Requisites: (ZOOLOGY/BIOLOGY/BOTANY 152, BOTANY/

BIOLOGY 130, or BIOCORE 381) or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

PL PATH 311 – GLOBAL FOOD SECURITY

3 credits.

Isn't having enough food a basic human right? Exploration of the drivers of food insecurity: barriers to food production (pests, land availability, climate), barriers to food availability (politics, price, biofuels), and a greater need due to population growth. Examination of solutions to food insecurity.

Requisites: Sophomore standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2024

PL PATH 315 – PLANT MICROBIOMES

4 credits.

Explore plant associated microbial communities (the plant microbiome), methods used to study them, and how we can use them to improve plant and ecosystem health in the face of challenges to agricultural and natural systems. Examples will be drawn from annual crop, grassland, and forested ecosystems. Use current molecular, bioinformatic, and statistical approaches to characterize rhizosphere microbiomes from samples collected as part of on-going research projects.

Requisites: (ZOOLOGY/BIOLOGY/BOTANY 152, ZOOLOGY/BIOLOGY 101 and 102, BOTANY/BIOLOGY 130, or BIOCORE 381) and (STAT 301 or 371), or Graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

PL PATH/SOIL SCI 323 – SOIL BIOLOGY

3 credits.

Nature, activities and role of organisms inhabiting soil. Effects of soil biota on ecosystem function, response to cultural practices, and impacts on environmental quality, including bioremediation of contaminated soils.

Requisites: (ZOOLOGY/BIOLOGY/BOTANY 152, or ZOOLOGY/BIOLOGY 101 and 102, or BOTANY/BIOLOGY 130, or BIOCORE 384) and (CHEM 104, 109, or 116), or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

PL PATH/BOTANY 332 – FUNGI

4 credits.

Growth, development, variability and dispersal of saprophytic, parasitic, and symbiotic fungi, with a consideration of their ecological and economic significance. Develop skills in microscopy with live fungal materials.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, BIOCORE 381, or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

PL PATH/BOTANY 333 – BIOLOGY OF THE FUNGI

2 credits.

Growth, development, variability and dispersal of saprophytic, parasitic, and symbiotic fungi, with a consideration of their ecological and economic significance.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, BIOCORE 381, or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Will have a detailed knowledge of the biodiversity of Fungi, and organisms traditionally included in mycology courses, including but not limited to systematics, life cycles, genetics, pathology, ecology.

Audience: Both Grad & Undergrad

2. Apply knowledge of Fungi and fungal-like organisms for use in agriculture and industry.

Audience: Both Grad & Undergrad

3. Communicate about fungi in either an outreach or professional capacity.

Audience: Graduate

PL PATH/A A E/AGRONOMY/HORT 367 – INTRODUCTION TO ORGANIC AGRICULTURE: PRODUCTION, MARKETS, AND POLICY

3 credits.

Provides an in-depth understanding of the history of organic agriculture, its production, processing, marketing, and social dimensions, and its impact on environmental, community, and human health.

Requisites: ENVIR ST/AGROECOL/AGRONOMY/C&E SOC/ ENTOM 103, AGRONOMY 100, HORT 120, BOTANY/PL PATH 123, SOC/ C&E SOC 222, or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Describe the history of current organic systems and how it influences the way that organic farms and industries work.

Audience: Both Grad & Undergrad

2. Explore the biological, ecological, and agricultural underpinnings of organic production systems.

Audience: Both Grad & Undergrad

3. Examine how organic systems, social initiatives, and regulations are developed and how they shape business activities, community development efforts, and human and environmental health outcomes.

Audience: Both Grad & Undergrad

4. Evaluate the benefits and limitations of organic systems, social initiatives, and regulations from environmental, social, economic, and racial justice perspectives.

Audience: Both Grad & Undergrad

5. Analyze sustainability issues and/or practices using a systems-based approach.

Audience: Both Grad & Undergrad

6. Describe the social, economic, and environmental dimensions of organic farming and identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course.

Audience: Both Grad & Undergrad

7. Develop the capacity to evaluate sustainability and resilience outcomes of organic and other agricultural production and processing systems using interdisciplinary methods.

Audience: Graduate

PL PATH 375 – SPECIAL TOPICS

1-4 credits.

Subjects of current interest to undergrads.

Requisites: None

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2022

PL PATH 399 – COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION

1-8 credits.

An internship under guidance of a faculty or instructional academic staff member in Plant Pathology and internship site supervisor. Students are responsible for arranging the work and credits with the faculty or instructional academic staff member and the internship site supervisor.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Workplace - Workplace Experience Course

Repeatable for Credit: Yes, for 8 number of completions

Last Taught: Spring 2020

PL PATH 400 – STUDY ABROAD IN PLANT PATHOLOGY

1-6 credits.

Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. Current enrollment in a UW-Madison study abroad program

Requisites: None

Repeatable for Credit: Yes, unlimited number of completions

PL PATH 499 – INDEPENDENT STUDY IN ORGANIC AGRICULTURE

2 credits.

Provide students research and/or hands-on experiences within the organic sector in order to gain scientific knowledge and/or an in-depth understanding of the research and science of organic agriculture, its production, processing, marketing, and social dimensions, and its impact on environmental, community, and human health. Declared in the Certificate in Organic Agriculture

Requisites: Consent of instructor

Course Designation: Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2025

Learning Outcomes: 1. Apply knowledge of organic production through experiential opportunities within local, national and/or international communities.

Audience: Undergraduate

2. Research and/or develop innovations that integrate the biological, ecological, social, and economic concepts of organic agriculture into scientific or practical applications supporting organic farmers, industry participants, and/or consumers.

Audience: Undergraduate

PL PATH/BOTANY/ENTOM 505 – PLANT-MICROBE INTERACTIONS: MOLECULAR AND ECOLOGICAL ASPECTS

3 credits.

Molecular and ecological aspects of the interactions between plants and microorganisms. Explores many of the themes, from genetic to integrative, of modern biology, and illustrates how study of plant-microbe interactions contributes to understanding of fundamental plant science.

Requisites: MICROBIO 303, GENETICS 466, 468, BIOCHEM 501, 508, or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

PL PATH 517 – PLANT DISEASE RESISTANCE

2-3 credits.

Host resistance in plant disease control. Conceptual and applied aspects of resistance: how it works, why it sometimes fails, and the traditional and modern techniques used for evaluating host resistance and incorporating resistance factors into new plant varieties.

Requisites: PL PATH 300, GENETICS 466, 468, AGRONOMY/HORT 338, 501, or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

PL PATH 559 – DISEASES OF ECONOMIC PLANTS

3 credits.

Symptoms, epidemiology and control of diseases of crop plants; emphasis on disease diagnosis.

Requisites: (PL PATH 300 and 332), or graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2024

PL PATH/BOTANY 563 – PHYLOGENETIC ANALYSIS OF MOLECULAR DATA

3 credits.

Theory and practice of phylogenetic inference from DNA sequence data.

Requisites: (ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, or BIOCORE 381) and (STAT 240, 301, 324, or 371) or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2025

Learning Outcomes: 1. Explain in details all the steps in the pipeline for phylogenetic inference and how different data and model choices affect the inference outcomes

Audience: Both Grad & Undergrad

2. Plan and produce reproducible scripts with the analysis of real biological data

Audience: Both Grad & Undergrad

3. Justify the data and model choices made for the data analysis

Audience: Both Grad & Undergrad

4. Interpret the results of the most widely used phylogenetic methods in biological terms

Audience: Both Grad & Undergrad

5. Orally present the results of phylogenomic data analyses based on the best scientific and reproducibility practices

Audience: Graduate

PL PATH 590 – CAPSTONE IN PLANT PATHOLOGY

1-4 credits.

Synthesizing research-based capstone experience in Plant Pathology. Develop problem-solving skills, be exposed to multidisciplinary approaches, develop teamwork and interpersonal skills, develop information resources, consider societal, economic, ethical, scientific and professional aspects of the field, and prepare and present written and/or oral reports.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2025

PL PATH 602 – ECOLOGY, EPIDEMIOLOGY AND CONTROL OF PLANT DISEASES

3 credits.

Environmental factors in the development and spread of diseases, pathogen variability, genetics of disease resistance, and principles of disease control.

Requisites: PL PATH 300, (MATH 217 or 221), and (STAT 301, 371, or F&W ECOL/STAT 571), or graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

PL PATH/ENTOM/F&W ECOL/SOIL SCI 606 – COLLOQUIUM IN ENVIRONMENTAL TOXICOLOGY

1 credit.

Current topics in molecular and environmental toxicology and problems related to biologically active substances in the environment. Topics vary each semester. Lectures are by resident and visiting professors and other researchers.

Requisites: ZOOLOGY/BIOLOGY 101 or BOTANY/BIOLOGY 130 or ZOOLOGY/BIOLOGY/BOTANY 151, or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2016

PL PATH 622 – PLANT-BACTERIAL INTERACTIONS

2-3 credits.

Physiology, genetics, taxonomy, and ecology of bacterial pathogens, epiphytes, and symbionts of plants.

Requisites: MICROBIO 303 and (GENETICS 466, 468, BIOCHEM 501, or 508) or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2019

PL PATH/M M & I/ONCOLOGY 640 – GENERAL VIROLOGY-MULTIPLICATION OF VIRUSES

3 credits.

The structure, multiplication, genetics, pathology and control of animal and plant viruses.

Requisites: (GENETICS 466 or 467) and (BIOCHEM 501 or 508) or graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Identify the major classes of viruses infecting animals and plants, and summarize their basic replication strategies.

Audience: Both Grad & Undergrad

2. Identify the major innate and adaptive antiviral immunity mechanisms of animals and plants, and examples of viral countermeasures against these.

Audience: Both Grad & Undergrad

3. Summarize the burdens and threats of viruses to public health, agriculture, etc.

Audience: Both Grad & Undergrad

4. Identify the major approaches and challenges to virus control at the single organism and host population levels, including why viruses are generally harder to control than bacteria, and major steps in developing new antiviral agents.

Audience: Both Grad & Undergrad

5. Illustrate beneficial uses of viruses and their genes in research, biotechnology and medicine.

Audience: Both Grad & Undergrad

6. Design and evaluate basic experiments to address specific questions in virology.

Audience: Both Grad & Undergrad

7. Read and evaluate primary literature papers in virology.

Audience: Graduate

PL PATH/BOTANY/GENETICS/M M & I 655 – BIOLOGY AND GENETICS OF FUNGI

3 credits.

Fungal genetics, genomics, and physiology using plant pathogenic fungi and the genetic models *Aspergillus nidulans* and *Neurospora crassa* as model systems to explore the current knowledge of fungal genetics and plant/fungal interactions.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2024**Learning Outcomes:** 1. Demonstrate a basic understanding of fungal biology and genetics

Audience: Graduate

2. Analyze current research topics in fungal genetics/biology

Audience: Graduate

3. Identify members of the fungal research community

Audience: Graduate

4. Write and critique research grants

Audience: Graduate

5. Critique and discuss peer reviewed manuscripts

Audience: Graduate

6. Develop and deliver oral presentations (research paper and own research)

Audience: Graduate

7. Improve communication skills (oral and written)

Audience: Graduate

PL PATH 681 – SENIOR HONORS THESIS

2-4 credits.

Individual study for undergraduate students in an Honors program completing a thesis in the area of Plant Pathology, as arranged with a faculty member.

Requisites: Consent of instructor**Course Designation:** Honors - Honors Only Courses (H)**Repeatable for Credit:** No**Last Taught:** Fall 2018**PL PATH 682 – SENIOR HONORS THESIS**

2-4 credits.

Second semester of individual study for undergraduate students in an Honors program completing a thesis in the area of Plant Pathology, as arranged with a faculty member.

Requisites: Consent of instructor**Course Designation:** Honors - Honors Only Courses (H)**Repeatable for Credit:** No**Last Taught:** Spring 2019**PL PATH 699 – SPECIAL PROBLEMS**

1-5 credits.

Individual advanced work in an area of Plant Pathology under the direct guidance of a faculty member.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions**Last Taught:** Spring 2025**PL PATH 799 – PRACTICUM IN PLANT PATHOLOGY TEACHING**

1-3 credits.

Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance.

Requisites: Consent of instructor**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2025**PL PATH 875 – SPECIAL TOPICS**

1-4 credits.

Topics of current interest to Grad students.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** Yes, unlimited number of completions**Last Taught:** Spring 2025**PL PATH 923 – SEMINAR**

1 credit.

Seminar series on topics related to plant pathology

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** Yes, unlimited number of completions**Last Taught:** Spring 2025**PL PATH/BOTANY 930 – SEMINAR-MYCOLOGY**

1 credit.

Topics, recent advances literature in the area of Mycology.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** Yes, unlimited number of completions**Last Taught:** Fall 2024**PL PATH 990 – RESEARCH**

1-9 credits.

Independent laboratory research in preparation of a graduate thesis under supervision of a faculty member

Requisites: Consent of instructor**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** Yes, unlimited number of completions**Last Taught:** Spring 2025