PL P 490. Independent Study. Cr. 1-3. Repeatable, maximum of 6 credits. F.S.S. Prereq: Junior or senior classification. 7 credits in biological sciences, permission of instructor. A maximum of 6 credits of PL P 490 may be used toward the total of 128 credits required for graduation.

PL P 490A. Independent Study: Plant Pathology. Cr. 1-3. Repeatable, maximum of 6 credits. F.S.S. Prereq: Junior or senior classification. 7 credits in biological sciences, permission of instructor. A maximum of 6 credits of PL P 490A may be used toward the total of 128 credits required for graduation.

PL P 490H. Independent Study: Honors. Cr. 1-3. Repeatable, maximum of 6 credits. F.S.S. Prereq: Junior or senior classification. 7 credits in biological sciences, permission of instructor. A maximum of 6 credits of PL P 490H may be used toward the total of 128 credits required for graduation.

PL P 494. Seed Pathology. (Dual-listed with PL P 594). (2-3) Cr. 3. Alt. S., offered 2013. Prereq: PL P 408 Munkvold. Significance of diseases on the major phases of seed production; growing, harvesting, conditioning, storing, and planting seed. Pathogens considered include fungi, bacteria, viruses, nematodes, and abiotic agents. Emphasis on epidemiology, management, host-pathogen relationships, seed transmission, and seed health testing. Credit may not be obtained for both PL P 494 and ST/Bi P 592.

Courses primarily for graduate students, open to qualified undergraduates:

PL P 505. Plant-Pathogen Interactions. (2-0) Cr. 2. S. Prereq: PL P 408 or PL P 416, BIOL 313 Baum, Whitham. Introduction to mechanisms of plant-parasite interaction. Genetics and molecular genetics of plant disease resistance and pathogenicity.

PL P 508. Principles of Plant Pathology. (Dual-listed with PL P 408). (2-3) Cr. 3. F.S. Prereq: 8 credits in life sciences, including BIOL 211 Braun. Principles underlying the nature, diagnosis, and management of plant diseases. Laboratory complements lecture topics and provides experience in plant disease diagnosis.

PL P 511. Integrated Management of Tropical Crops. (Cross-listed with ENT, HORT). (3-0) Cr. 3. Alt. S., offered 2013. Prereq: PL P 408 or PL P 416 or ENT 370 or ENT 376 or HORT 221 Gleason, Lewis. Applications of Integrated Crop Management principles (including plant pathology, entomology, and horticulture) to tropical cropping systems. Familiarization with a variety of tropical agroecosystems and Costa Rican culture is followed by 10-day tour of Costa Rican agriculture during spring break, then writeup of individual projects. Meets International Perspectives Requirement.

PL P 530. Ecologically Based Pest Management Strategies. (Cross-listed with AGRON, ENT, SUSAG). (3-0) Cr. 3. Alt. F., offered 2014. Durable, least-toxic strategies for managing weeds, pathogens, and insect pests, with emphasis on underlying ecological processes.

PL P 543. Ecology and Epidemiology of Plant Diseases. (3-2) Cr. 4. Alt. F., offered 2013. Prereq: PL P 408 or PL P 416 Nutter. Theory and practice related to the ecology and epidemiology of plant disease epidemics. Interactions among host and pathogen populations as affected by the environment are quantified with respect to time and space. Analysis of ecological and host and pathogen genetic factors that alter the course of plant disease epidemics. Risk assessment theory, disease forecasting, and modeling the impact of biotic plant stresses on yield and quality are also emphasized.

PL P 574. Plant Nematology.
(2-3) Cr. 3. Alt. F., offered 2012. Prereq: PL P 408 or PL P 416
Baum. Morphology, anatomy, identification, control, and life cycles of common
plant-parasitic nematodes; host-parasite interactions; Caenorhabditis elegans.

PL P 577. Bacterial-Plant Interactions.
(Dual-listed with PL P 477). (Cross-listed with MICRO). (3-1) Cr. 3. Alt. S., offered
2014. Prereq: 3 credits in microbiology or plant pathology
Focuses on plant-associated bacteria in terms of their ecology, diversity, and the
physiological and molecular mechanisms involved in their interaction with plants;
covers symbiotic nitrogen fixation, plant pathogenesis, plant growth and biological
control.

PL P 590. Special Topics.
Cr. 1-3. Repeatable. F.S.SS. Prereq: 10 credits in biological sciences, permission
of instructor

PL P 592. Seed Health Management.
(Cross-listed with STB). (2-0) Cr. 2. Alt. S., offered 2014. Prereq: Admission to the
Graduate Program in Seed Technology and Business/Consent of instructor
Munkvold. Occurrence and management of diseases during seed production,
harvest, conditioning, storage, and planting. Emphasis on epidemiology, disease
management in the field, seed treatment, effects of conditioning on seed health,
and seed health testing. Credit may not be obtained for both PI P/STB 592 and PI
P 594.

PL P 594. Seed Pathology.
(Dual-listed with PL P 494). (2-3) Cr. 3. Alt. S., offered 2013. Prereq: PL P 408
Munkvold. Significance of diseases on the major phases of seed production;
growing, harvesting, conditioning, storing, and planting seed. Pathogens
considered include fungi, bacteria, viruses, nematodes, and abiotic agents.
Emphasis on epidemiology, management, host-pathogen relationships, seed
transmission, and seed health testing. Credit may not be obtained for both PL P
494 and STB/PI P 592.

Courses for graduate students:
(Cross-listed with MICRO, V MPM). (3-0) Cr. 3. Alt. F., offered 2014. Prereq:
BBMB 405 or GDCB 511
Advanced study of virus host-cell interactions. Molecular mechanisms of viral
replication and pathogenesis.

PL P 691. Field Plant Pathology.
(0-6) Cr. 2. Repeatable. Alt. SS., offered 2013. Prereq: PL P 408 or PL P 416
Diagnosis of plant diseases, plant disease assessment methods, and the
integration of disease management into commercial crop production practices.
Objectives are to familiarize students with common diseases of Midwest crops
and landscape plants, and to provide experience in disease diagnosis. Field trips
include commercial operations, agricultural research facilities, and ornamental
plantings.

(Cross-listed with MICRO). (3-0) Cr. 3. Alt. F., offered 2012. Prereq: PL P 506 or
BBMB 405 or GEN 411 or MICRO 402 or strong background in molecular biology
Bogdanove, Whitham. Seminal and current research in molecular and
physiological aspects of plant interactions with pathogens, including mechanisms
of pathogenesis, host-pathogen recognition and host defense, with an
emphasis on critical evaluation of primary literature. Students also complete an
interinstitutional research proposal writing and peer review exercise.

(2-0) Cr. 2. Repeatable. F.S. Prereq: PL P 408 or PL P 416, permission of
instructor
Advanced topics in plant pathology, including biological control, cultural control,
resistance gene deployment, genetic engineering for disease resistance, chemical
control, integrated pest management, emerging diseases, fungal genetics, insect
vector biology, professional communications, etc.

PL P 698. Seminar.
Cr. 1. Repeatable. F.S.

Cr. arr. Repeatable.
F.S.SS.