

# PATH - PATHOBIOLOGY

PATH Class Schedule (<https://courses.illinois.edu/schedule/DEFAULT/DEFAULT/PATH/>)

## Courses

PATH 290 Undergraduate Research credit: 1 to 5 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/290/>)

Laboratory and/or field studies selected in consultation with a faculty mentor. May be repeated to a maximum of 10 hours. Prerequisite: Consent of instructor.

PATH 394 Pathobiology credit: 1 to 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/394/>)

To be used to designate a trial or experimental course for five or more students. It is designed to be an undergraduate course. A course can be taught under this designation two times within a two-year period and cannot be renewed as PATH 394 course. May be repeated to a maximum of 8 hours if topics vary. Prerequisite: Consent of instructor.

PATH 410 Comparative Immunobiology credit: 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/410/>)

Same as ANSC 450 and MCB 442. See ANSC 450.

PATH 433 Virology & Viral Pathogenesis credit: 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/433/>)

Emphasizes basic principles of virus structure and replication, virus-cell interactions and virus-host interactions that underlie the molecular biology, pathogenesis, and transmission of viral disease. Same as MCB 433. 3 undergraduate hours. 3 graduate hours. Prerequisite: MCB 300 or MCB 354, or consent of instructor.

PATH 439 Health Applications of GIS credit: 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/439/>)

Same as GGIS 439. See GGIS 439.

PATH 494 Pathobiology credit: 1 to 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/494/>)

To be used to designate a trial or experimental course for five or more students. A course can be taught under this designation two times within a two-year period and cannot be renewed as a PATH 494 course. 1 to 4 undergraduate hours. 1 to 4 graduate hours. Approved for letter and S/U grading. May be repeated to a maximum of 8 hours if topics vary. Prerequisite: Consent of instructor.

PATH 511 Seminar in Prod/Pop Medicine credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/511/>)

Discussion of selected topics and journal articles related to production and population medicine, i.e. health and disease control/prevention decisions that are based on improving productivity, profitability, and maintaining populations of animals. Requires presentation of a formal seminar to receive a letter grade. Same as VCM 511. 1 graduate hour. 1 professional hour. Approved for letter and S/U grading. May be repeated to a maximum of 4 hours. Prerequisite: Graduate standing in CVM; VM 608 or equivalent epidemiology course (requires third year standing in the professional curriculum) and consent of instructors; for graduate students outside CVM, consent of instructors required.

PATH 515 Mechanisms Microbial Infection credit: 3 or 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/515/>)

Newer concepts of host-microorganism relations; emphasis on the dynamics and pathogenic mechanisms of microorganisms, immune responses and defense factors of the host, and pathogenesis of specific infections. Lectures, discussions, laboratory, and special problems. Prerequisite: MCB 426 or VM 605, or equivalent; consent of instructor.

PATH 516 Epidemiology Infectious Dis credit: 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/516/>)

Ecology of infection and disease; spread of disease and modes of transmission; methods of control; socioeconomic consideration; selected diseases: malaria, Lyme disease, anaplasmosis, schistosomiasis, salmonellosis, pseudorabies, AIDS. Student presentations. Prerequisite: Epidemiology class (VM 608 or equivalent), or consent of instructor.

PATH 517 Principle/Method Epidemiology credit: 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/517/>)

Course covers principles of theoretical and applied epidemiology, with examples from veterinary and human medicine. The aim of the course is to integrate epidemiologic concepts and quantitative methodology in order to evaluate disease risk and treatment options at the individual and population levels. Topics include causal inference, epidemiologic study design, evaluation of bias, outbreak investigation, and special areas within epidemiology. 4 graduate hours. No professional credit. Prerequisite: Graduate student standing or consent of instructor.

PATH 519 Mechanisms Viral Pathogenesis credit: 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/519/>)

Lecture-discussion on topics of molecular mechanisms of viral pathogenesis. Mechanisms of infection, virulence, viral spread, interaction with the immune system, persistence and other host-parasite interactions are covered using modern literature and in depth exploration of several animal virus systems. Same as MCB 561. Prerequisite: PATH 433 or VM 607 or consent of instructor.

PATH 520 Applied Epidemiology credit: 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/520/>)

Same as HK 528. See HK 528.

PATH 521 Biophysics of Viruses credit: 2 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/521/>)

This is an interdisciplinary graduate course. The course includes lectures and discussions of advanced topics in physical virology. The course integrates fundamentals in molecular virology with the latest accounts of relevant biophysics. Critical reviews of primary research literature, experimental approaches and design, and data interpretation are emphasized. 2 graduate hours. No professional credit. Prerequisite: Graduate standing.

PATH 523 Responsible Conduct of Biomedical Research credit: 2 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/523/>)

Discussion-based instruction that meets the Responsible Conduct of Research (RCR) training requirements issued by the National Institutes of Health. Discussions will be based on assigned readings and videos, as well as lectures by subject-matter experts. The full range of required RCR topics will be covered including conflicts of interest, use of human subjects and animals in research, laboratory safety, collaborative research, peer review, authorship/publication, secure/ethical data use, and the role of the scientist in society. 2 graduate hours. No professional credit. Approved for S/U grading only.

PATH 524 Biostatistics credit: 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/524/>)

Application of statistical methods to epidemiology, clinical and diagnostic medicine, and laboratory biomedical experiments. Topics include descriptive statistics and graphics, reliability, sample size estimation, contingency table analysis, analysis of group differences, survival analysis, correlation and linear regression. Emphasizes use of computerized statistical software in biomedical data analysis. 4 graduate hours. 4 professional hours. Credit is not given for both PATH 524 and either CPSC 440 or EPSY 480.

PATH 527 Parasitology/Epidemiology Sem credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/527/>)

Discussion of selected historic and current literature related to parasitology. May be repeated to a maximum of 2 hours. Prerequisite: Credit or concurrent registration in VM 607.

PATH 530 The Microbiome: Ecology & Analysis credit: 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/530/>)

Students will explore the mechanisms through which the microbiome contributes to health and will become familiar with the molecular, computational, and statistical tools and methodologies used to interrogate microbiome function and composition. In the accompanying lab, students will use command line tools and R locally and in a high-performance compute environment to quality control, annotate, analyze, and visualize shotgun metagenomic and amplicon (16S rRNA gene) datasets. 3 graduate hours. No professional credit. Prerequisite: A working knowledge of microbiology, genetics, and statistics is recommended. Consent of the instructor is required.

PATH 534 Pathogenomics credit: 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/534/>)

Fundamental concepts and principles of genomics and transcriptomics. 3 graduate hours. No professional credit.

PATH 542 Ocular Pathology credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/542/>)

This course is aimed at veterinary pathology and ophthalmology residents. The course would also be open to interested UIUC medical students. The course involves examination and discussion of microscopic lesions of clinical veterinary ophthalmology cases through examination of clinical images, glass slides, and digital microscopic images. Students meet weekly concurrently with pathologists and ophthalmologists and either present current diagnostic cases, mystery cases, or lead a topic discussion related to ocular pathology. Same as VCM 542. 1 graduate hour. No professional credit. May be repeated in separate terms up to 9 hours, if topics vary. Prerequisite: Veterinary anatomic pathology residents or veterinary ophthalmology residents and interested UIUC medical students.

PATH 545 Vet Diagnostic Path 1 credit: 0 to 6 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/545/>)

Instruction in diagnostic pathology for pathology majors. Instruction based on necropsy cases with emphasis on necropsy protocol; sample collection and submission; recognition, description, and interpretation of gross and microscopic lesions; and case diagnosis based on all test results. Approved for letter and S/U grading. May be repeated to a maximum of 10 hours. Prerequisite: Graduate veterinarian, graduate student with major in pathology, and consent of instructors.

PATH 546 Vet Diagnostic Path 2 credit: 0 to 6 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/546/>)

Instruction in diagnostic pathology for pathology majors. Instruction based on necropsy cases with emphasis on recognition, description, and interpretation of gross and microscopic lesions; evaluation of results of other diagnostic assays; disease pathogenesis; and final case diagnosis and comments. Approved for letter and S/U grading. May be repeated to a maximum of 10 hours. Prerequisite: PATH 545 and consent of instructors.

PATH 547 Pathology Seminar credit: 0 to 1 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/547/>)

Review and discussion of selected pathologic and clinico-pathologic material. Students are required to participate in weekly discussions and present at least one formal seminar per semester, on a topic approved by Pathology faculty. Approved for letter and S/U grading. May be repeated to a maximum of 6 hours. Prerequisite: Credit or concurrent registration in PATH 545, and consent of instructor.

PATH 551 Interpretive Cytopathology credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/551/>)

Discusses selected cytologic material. Emphasizes recognition, interpretation, oral presentation, and written description of cytology case materials. May be repeated to a maximum of 8 hours.

PATH 552 Diagnostic Cytology credit: 2 or 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/552/>)

Instruction in diagnostic cytology for clinical pathology majors. The course is for clinical pathology graduate students to advance their training in cytology. This is an intensive course with one-on-one training with the instructor. Clinical cytology cases and blood smears are evaluated microscopically and then a thorough written description and interpretation of each case is performed and reviewed. May be repeated in separate terms to a maximum of 30 graduate hours. Note that a maximum of 8 credit hours will count towards a graduate degree. Prerequisite: DVM degree or equivalent, clinical pathology graduate student or consent of instructor.

PATH 555 Comparative Oncology credit: 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/555/>)

Comparative study of the nature of mammalian and avian neoplasms based on general and special methods of tumor identification and classification; lectures, demonstrations, and laboratory. Prerequisite: VM 605 and VM 608, or equivalent.

PATH 556 Exotic/Wild Animal Diag Path 1 credit: 1 or 2 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/556/>)

Instruction in the performance of necropsy examinations on exotic and wild animals; emphasizes recognition, interpretation, oral presentations and written descriptions of gross and histologic lesions; emphasizes histologic features of lesions. For pathology majors only. May be repeated to a maximum of 10 hours. Prerequisite: VM 605 and VM 608; consent of instructor.

PATH 557 Exotic/Wild Animal Diag Path 2 credit: 0 to 2 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/557/>)

Instruction in the use of supplemental diagnostic data in the areas of bacteriology, clinical pathology, immunology, parasitology, toxicology, and virology in arriving at differential and definitive diagnoses of wild and exotic animals. Pathogenesis of gross and histologic lesions and mechanisms of lesion development are emphasized. For pathology majors only. May be repeated to a maximum of 10 hours. Prerequisite: PATH 556 or equivalent or consent of instructor.

PATH 558 Exotic/Wild Animal Path Sem credit: 0 to 1 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/558/>)

Discussion of selected pathologic and clinico-pathologic material pertaining to exotic and wild animals and presentation of a formal seminar. Approved for letter and S/U grading. May be repeated to a maximum of 6 hours. Prerequisite: Concurrent enrollment in PATH 556 or PATH 557 or consent of instructor.

PATH 559 Surgical Pathology credit: 0 to 2 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/559/>)

Discussion and interpretation of disease processes of domestic animals; emphasizes interpretation of pathologic changes in tissue specimens obtained during surgical procedures; correlates structure, function, and prognosis. Approved for letter and S/U grading. May be repeated to a maximum of 10 hours. Prerequisite: PATH 545 and PATH 546, or equivalent; consent of instructor.

PATH 560 Spatial Epidemiology credit: 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/560/>)

Patterns of health and disease in place and time; application of geographic information systems; analysis of time-space relations; clusters and diffusion of disease; geographic epidemiology of selected infectious and noninfectious diseases. Same as GGIS 560. 4 graduate hours. No professional credit. Prerequisite: CHLH 474 or equivalent, or VM 608 or PATH 517 or equivalent; PATH 524 or SOC 485 or equivalent.

PATH 575 Vet Info Tech/Computer App credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/575/>)

Veterinary applications of word processing, spreadsheet, database, statistical, and health management software packages and various methods of information access and retrieval will be complemented by lecture/discussion and computer laboratory sessions. Prerequisite: Two years of work experience as a veterinarian (post-graduate DVM) or consent of instructor; priority will be given to students enrolled in the Executive Veterinary Program.

PATH 576 Communication Vet Consultation credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/576/>)

Utilization of communication as a tool in veterinary consultation and management. Skills will be developed in oral and written communication through assigned presentations, technical reports, newsletters, and business letters. Veterinary applications will be emphasized. Prerequisite: Two years of work experience as a veterinarian (post-graduate DVM) or consent of instructor; priority will be given to students enrolled in the Executive Veterinary Program.

PATH 577 Vet Leadership Organ Behavior credit: 2 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/577/>)

Leadership principles and organizational theory with practical application to veterinary management and consultation. Includes individual, interpersonal, and organizational influences focusing on current issues in the veterinary profession. Prerequisite: Two years of work experience as a veterinarian (post-graduate DVM) or consent of instructor; priority will be given to students enrolled in the Executive Veterinary Program.

PATH 578 Veterinary Business Management credit: 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/578/>)

Instruction in and application of the principles of veterinary business management including economics, decision making, financial management, marketing, and legal issues. Emphasis on specific practice type (small animal, food animal, equine) depending on interest of students. Prerequisite: Two years of work experience as a veterinarian (post-graduate DVM) or consent of instructor; priority will be given to students enrolled in the Executive Veterinary Program.

PATH 579 Adv Concept Swine Health Med 1 credit: 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/579/>)

Instruction on the biostatistics involved in the effective analysis of swine production records, diagnostic tests, and clinical trials. Application of epidemiology principles in a swine production setting. Practical diagnostic, treatment, and preventive procedures for disease conditions related to swine production. Prerequisite: Two years of work experience as a veterinarian (post-graduate DVM) or consent of instructor; priority will be given to students enrolled in the Executive Veterinary Program.

PATH 590 Seminar credit: 0 or 1 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/590/>)

Required of all graduate students whose major is veterinary pathobiology. Approved for letter and S/U grading.

PATH 592 Special Problems credit: 1 to 4 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/592/>)

Basic and applied study including orientation and research on pertinent initial and continuing problems in the student's area of interest. May be repeated to a maximum of 8 hours if topics vary. Prerequisite: Consent of instructor.

PATH 596 Interdisciplinary Tox Sem credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/596/>)

Same as ENV5 596 and CB 596. See CB 596.

PATH 598 Non-Thesis Research credit: 1 to 8 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/598/>)

Independent research to fulfill requirement for non-thesis alternative in Master of Science program only. Approved for S/U grading only. May be repeated to a maximum of 8 hours if topics vary. Credit is not given for both PATH 598 and PATH 599. Prerequisite: Must be Graduate Veterinarian.

PATH 599 Thesis Research credit: 0 to 16 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/599/>)

Approved for S/U grading only. May be repeated.

PATH 629 Emergency Preparedness and Response to Foreign Animal Diseases credit: 2 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/629/>)

This online elective course for graduate and DVM students focuses on disease emergency response that is complementary to other veterinary curriculum coursework. This course will study example foreign animal diseases (FADs) so that students understand disease transmission and epidemiology, how biosecurity can help prevent introduction and spread of diseases, and will use the Incident Command structure in emergency response scenarios. Students will contribute evaluative thinking for improvements in FADPreP (FAD Preparedness, Response, and Prevention). 2 graduate hours. 2 professional hours. Prerequisite: Restricted to students enrolled in the first three years of the DVM Professional curriculum or graduate students in epidemiology, public health, or biology-related discipline, or by permission of instructor.

PATH 644 Bioscientific Writing credit: 1 Hour. (<https://courses.illinois.edu/schedule/terms/PATH/644/>)

Instruction in communicating research results to a scientific audience. Assignments focus on writing an abstract, constructing a poster presentation, and completing a short manuscript. Intended for veterinary students who have some previous experience in a research setting and access to experimental data that can be used as a basis of writing exercises. Prerequisite: Enrollment in the veterinary curriculum and consent of instructor.

PATH 692 Special Problems credit: 1 to 3 Hours. (<https://courses.illinois.edu/schedule/terms/PATH/692/>)

Individual research on a special problem chosen in consultation with the instructor and department head. Approved for both letter and S/U grading. May be repeated to a maximum of 6 hours if topics vary. 1 to 3 graduate hours. 1 to 3 professional hours. Prerequisite: Registration in veterinary curriculum with grade-point average of 3.0 or above, or consent of instructor.