

# PATHOBIOLOGY (PATH)

## PATH 1000. Biomedical Issues in Pathobiology. (2 Credits)

This introductory course focuses on current global issues of health and disease to describe fundamental topics in pathobiology. Global biomedical concerns regarding infectious diseases, population, cancer, biotechnology and environmental health will be addressed. Course content will provide examples of the impact of veterinary and human pathology on world health issues.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%201000>)

## PATH 1100E. One Health: People, Animals, Plants, and the Environment. (3 Credits)

Exploration of health concepts and ecosystems where people, animals, plants, and the environment interconnect and impact each other. CA 3.

**Skill Codes:** COMP Environmental Literacy

**Content Areas:** CA3: Science & Technology

**Topics of Inquiry:** TO14: Environmental Literacy, TO16: Science & Empirical Inq

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%201100E>)

## PATH 1201. Exploring Careers in Pathobiology. (2 Credits)

Exposure to the Pathobiology major and careers in Pathobiology through interactions with professionals in relevant careers, training in basic laboratory safety and research compliance, and development of a personalized career journal.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%201201>)

## PATH 1202. Fundamental Biomedical Laboratory Techniques. (2 Credits)

Hands-on, basic biomedical research laboratory techniques with an emphasis on chemical and biological safety, as well as laboratory proficiency.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%201202>)

## PATH 2095. Special Topics. (1-6 Credits)

Credits, prerequisites and hours as determined by the Senate Curriculum and Course Committee.

**Enrollment Requirements:** Prerequisites and recommended preparation vary.

May be repeated for credit

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%202095>)

## PATH 2100. Anatomy and Physiology of Animals. (4 Credits)

A study of the anatomy and physiology of animals with reference to pathological changes of the component parts of the body.

**Enrollment Requirements:** BIOL 1107 or equivalent.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%202100>)

## PATH 2200. Modern Biomedical Laboratory Techniques. (3 Credits)

Comprehensive project-based laboratory course utilizing a variety of modern biomedical techniques to identify an unknown pathogen and express antigens for vaccine and diagnostic assay development. Topics covered include next-generation sequencing, CRISPR gene editing, mRNA technology, gene cloning and expression, protein purification and analysis, immunoassay, and reverse transcription quantitative PCR development.

**Enrollment Requirements:** BIOL 1107 or equivalent. Recommended preparation: PATH 1202.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%202200>)

## PATH 2301. Health and Disease Management of Animals. (3 Credits)

Designed for students who plan to own and work with domestic animals. Its purpose is to develop student competence in disease management and to foster an intelligent working relationship with their veterinarian. The course will cover a systematic study of infectious and noninfectious diseases of domestic animals from the standpoint of economy and public health.

**Enrollment Requirements:** PATH 2100.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%202301>)

## PATH 2710. Medical Microbiology: Bacteria and Fungi. (4 Credits)

Fundamental biology of pathogenic bacteria and fungi including host-pathogen interactions and microbiological laboratory techniques.

**Enrollment Requirements:** BIOL 1107 or equivalent.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%202710>)

## PATH 2720. Medical Microbiology: Viruses and Parasites. (4 Credits)

Fundamental biology of medically relevant viruses and parasites including host-pathogen interactions and microbiological laboratory techniques.

**Enrollment Requirements:** BIOL 1107 or equivalent.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%202720>)

## PATH 2800. Medical Cell Biology. (3 Credits)

Foundations of cellular structures and molecular basis of disease, from essential components of eukaryotic cells to cellular responses to injury and disease.

**Enrollment Requirements:** BIOL 1107 or equivalent.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%202800>)

## PATH 3093. Foreign Studies in Pathobiology. (1-15 Credits)

Special topics taken in a foreign study program.

May be repeated for a total of 15 credits

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203093>)

## PATH 3094W. Seminar. (2 Credits)

Majors may take this course in each semester of the senior year.

**Enrollment Requirements:** ENGL 1007 or 1010 or 1011.

May be repeated for credit

**Skill Codes:** COMP Writing Competency

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203094W>)

**PATH 3095. Special Topics. (1-6 Credits)**

Topics and credits to be published prior to the registration period preceding the semester offerings.

May be repeated for credit

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203095>)

**PATH 3099. Independent Study. (1-6 Credits)**

Special problems in connection with departmental research programs and diagnostic procedures for diseases of animals. Some suggested topics are histopathologic laboratory procedures, clinical hematology, diagnostic bacteriology, diagnostic parasitology.

May be repeated for credit

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203099>)

**PATH 3100. Histologic Structure and Function. (4 Credits)**

Designed for students in biologic, paramedical and animal sciences; its purpose is to integrate histologic and cellular structure with function, utilizing human tissues and those from other vertebrates.

**Enrollment Requirements:** Open to juniors or higher; open only with consent of instructor. Recommended preparation: PATH 2100 or PNB 2264-2265 or PNB 2274-2275 or an equivalent course in vertebrate anatomy and physiology.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203100>)

**PATH 3201. Principles of Animal Virology. (3 Credits)**

Structure and classification of viruses, cultivation and multiplication, pathogenesis and epidemiology of viral infections, host response, oncogenic viruses, immunization against, and laboratory diagnosis of viral diseases.

**Enrollment Requirements:** Open to juniors or higher.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203201>)

**PATH 3201W. Principles of Animal Virology. (3 Credits)**

Structure and classification of viruses, cultivation and multiplication, pathogenesis and epidemiology of viral infections, host response, oncogenic viruses, immunization against, and laboratory diagnosis of viral diseases.

**Enrollment Requirements:** ENGL 1007 or 1010 or 1011; open to juniors or higher.

**Skill Codes:** COMP. Writing Competency

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203201W>)

**PATH 3401. Immunobiology. (3 Credits)**

Principles of basic and clinical immunobiology; phylogeny and ontogeny of the immune response, characteristics of the immune response, cellular and humoral immunity; central and peripheral lymphoid tissues; mechanisms of immunologic injury and immunologic diseases; comparative and veterinary immunology; transplantation and tumor immunology.

**Enrollment Requirements:** BIOL 1107. Recommended preparation: Previous coursework in Cell Biology.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203401>)

**PATH 3501. Diagnostic Techniques for the Biomedical Sciences. (2 Credits)**

(Also offered as AH 3501.) Theoretical basis and practical exposure to modern laboratory methods used in the biomedical sciences for disease diagnosis.

**Enrollment Requirements:** MCB 3414; open to juniors or higher; open to Agricultural Biotechnology minors. Recommended preparation: MCB 2000.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203501>)

**PATH 3700. Emerging Infectious Diseases and Pandemics. (3 Credits)**

Mechanisms of emergence that different pathogens have used to cause disease in new hosts.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203700>)

**PATH 3810. Systems Pathophysiology I. (3 Credits)**

Organ-based study of human and animal diseases. Use of gross, microscopic, and physiologic evidence to diagnose disease. Topics covered include respiratory, cardiovascular, hematopoietic, lymphoid, musculoskeletal, and urinary systems.

**Enrollment Requirements:** Recommended preparation: PATH 2800 or equivalent.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203810>)

**PATH 3820. Systems Pathophysiology II. (3 Credits)**

Organ-based study of human and animal diseases. Use of gross, microscopic, and physiologic evidence to diagnose disease. Topics covered include central nervous, skin, hepatobiliary, endocrine, and digestive systems.

**Enrollment Requirements:** Recommended preparation: PATH 2800 or equivalent.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%203820>)

**PATH 4000. Bioinformatics in Molecular Epidemiology of Infectious Diseases. (3 Credits)**

Basic concepts and terminologies in bioinformatics and infectious disease epidemiology. Hands-on, practical experiences in sequence analysis: database, alignment, phylogenetic analysis, and visualization of data.

**Enrollment Requirements:** ANSC 3121, MCB 2400, or MCB 2410.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%204000>)

**PATH 4197W. Pathobiology Honors Thesis. (3 Credits)**

Writing of Honors thesis based on an independent research project in Pathobiology.

**Enrollment Requirements:** ENGL 1007 or 1010 or 1011; open only to Honors students; instructor consent required.

**Grading Basis:** Honors Credit

**Skill Codes:** COMP. Writing Competency

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%204197W>)

**PATH 4203. Principles of Antibacterial Development. (3 Credits)**

Designed to cover important concepts and pioneering strategies currently being used to develop novel antibacterials.

**Enrollment Requirements:** MCB 2610, or an equivalent course in general microbiology or bacteriology with consent of the instructor. Open to juniors or higher.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%204203>)

**PATH 4230. Vaccines and Immunotherapeutics. (3 Credits)**

Students develop an understanding of approaches for scientists and engineers to use the immune system to combat infectious and chronic diseases. Both traditional and modern molecular approaches to vaccine and immunotherapy design will be discussed. Students will gain an appreciation for the transition from basic research to practical applications.

**Enrollment Requirements:** PATH 3401 or an equivalent course in immunology.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%204230>)

**PATH 4300. Principles of Pathobiology. (3 Credits)**

The body's response to chemical, physical, and microbial injuries including the functional and morphologic alterations in disease of the major organ systems.

**Enrollment Requirements:** PATH 2100 or PNB 2264-2265 or PNB 2274-2275 or an equivalent course in vertebrate anatomy and physiology; open to juniors or higher. Recommended preparation: PATH 3100 or equivalent course in histology or cell biology.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=PATH%204300>)