HIV kills three million people per year, more than any other infectious disease. We will learn about the transmission, immunology, virology, vaccinology and societal impact of this virus. Six of the world’s leading HIV scientists will give guest lectures. Open to all Undergrads

**Requisites:** HS biol crse.

**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:** Fall 2017

### PATH 299 — INDEPENDENT STUDY

1-3 credits.

**Requisites:** Consent of instructor

**Course Designation:** Level - Elementary

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

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2005

### PATH 399 — INDEPENDENT STUDY

1-4 credits.

**Requisites:** Consent of instructor

**Course Designation:** Level - Elementary

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

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2017

### PATH 404 — PATHOPHYSIOLOGIC PRINCIPLES OF HUMAN DISEASES

3 credits.

Primarily for students of pharmacy and nursing to provide a basic understanding of the causes, pathophysiology, pathology and clinical manifestations of disease states. Required course for pharmacy and nursing programs.

**Requisites:** PHYSIOL 335

**Repeatable for Credit:** No

**Last Taught:** Spring 2017

### PATH/M&ENVTOX/MEDICINE/ONCOLOGY/PHM SCI/PHMCOL-M/POP HLTH 625 — TOXICOLOGY I

3 credits.

Basic principles of toxicology and biochemical mechanisms of toxicity in mammalian species and man. Correlation between morphological and functional changes caused by toxicants in different organs of the body.

**Requisites:** BIOCHEM 501, PHYSIOL 335, PATH 404 and PHM SCI 401

**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 2017

### PATH/M&ENVTOX/MEDICINE/PHM SCI/PHMCOL-M/POP HLTH 626 — TOXICOLOGY II

3 credits.

Survey of the basic methods and fundamental biochemical mechanisms of toxicity. Toxicity in mammalian organ systems, techniques for evaluating toxicity, as well as mechanisms of species specificity, and environmental interactions (with toxicant examples) are presented.

**Requisites:** MENVTOX/MEDICINE/ONCOLOGY/PATH/PHMCOL-M/PHM SCI/POP HLTH/M&ENVTOX/MEDICINE/ONCOLOGY/PATH/PHM SCI/PHMCOL-M 625

**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 2017

### PATH 651 — QUALITY ASSURANCE BASICS

1 credit.

Describes the regulatory requirements that all healthcare laboratories must follow to assure quality throughout the testing process. Covers the extensive CLIA’88 regulations and professional accreditation (JCAHO, CAP and COLA) standards.

**Requisites:** PATH 657 Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Spring 2013

### PATH 652 — QUALITY ASSURANCE PROJECTS

2 credits.

Provides a laboratory application for ensuring quality results through quality assurance practices in healthcare laboratories. This includes evaluating current quality assurance policies and practices and developing new policies to meet the many mandated CLIA’88 regulatory requirements and professional accreditation standards.

**Requisites:** Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Spring 2013
PATH 653 — METHOD VALIDATION BASICS  
1 credit.

Describes the fundamental experimental and statistical techniques used to validate the performance of analytical methods, including experiments for working range, replication, interference, recovery, and comparison of methods and associated data calculations, such as t-test and linear regression statistics.

**Requisites:** Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Fall 2012

PATH 654 — METHOD VALIDATION PROJECTS  
2 credits.

Provides a laboratory application of the principles and techniques of method validation studies, including experiments for working range, replication, interference, recovery, and comparison of methods and associated data calculations, such as t-test and linear regression statistics.

**Requisites:** PATH 653 Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Fall 2012

PATH 655 — QUALITY CONTROL BASICS  
1 credit.

Describes the fundamental principles, terminology, and practices of statistical quality control as applied with analytical testing processes in healthcare laboratories. Covers the plotting of Levey-Jennings control chart and interpretation of control data using the Westgard multirule procedure.

**Requisites:** Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Spring 2012

PATH 656 — QUALITY CONTROL PROJECTS  
2 credits.

Provides a laboratory application of the principles and techniques of statistical quality control in a real-world setting. Involves auditing QC data in an analytical laboratory and critical review of laboratory QC applications.

**Requisites:** PATH 655 Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Spring 2012

PATH 657 — QUALITY PLANNING BASICS  
1 credit.

Describes the principles and approach for setting method performance specifications and selecting statistical QC procedures on the basis of the quality required for a laboratory test. Introduces the chart of operating specifications as a practical quality-planning tool.

**Requisites:** Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Spring 2013

PATH 658 — QUALITY PLANNING PROJECTS  
2 credits.

Provides a laboratory application of the principles, theory, and approach for establishing method performance specifications and selecting statistical QC procedures for laboratory methods. Involves specific tests and methods in an analytical service laboratory.

**Requisites:** PATH 657 Sr st in clin lab sci, or bachelor’s degree in clin lab sci, or ASCP or NCA cert in clin lab sci, or admission to the Graduate Certificate in Laboratory Quality Management

**Repeatable for Credit:** No

**Last Taught:** Spring 2013

PATH 691 — SENIOR THESIS  
3 credits.

Independent research in the areas of structural virology, molecular virology, viral pathogenesis, or immunity to virus infection. A seminar presentation of research data and a written thesis are required in the final semester.

**Requisites:** Junior or Senior standing consent of instructor

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Fall 2016

PATH 699 — INDEPENDENT STUDY  
1-4 credits.

**Requisites:** Jr st cons inst

**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:** Fall 2017

PATH 703 — GENERAL PATHOLOGY  
2 credits.


**Requisites:** 2nd yr Med School st or written cons inst

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

**Repeatable for Credit:** No

**Last Taught:** Fall 2008
PATH 704 — PATHOLOGY OF ORGAN SYSTEMS
2 credits.

Continuation of Pathology 703. Organ based pathology is concerned with the mechanisms underlying disease processes specific to a given organ system, as manifested by morphologic (gross, cellular, and ultrastructural), physiologic, and biochemical changes.  
Requisites: 2nd yr Med School st or written cons inst  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: No  
Last Taught: Spring 2009

PATH 709 — CONTEMPORARY TOPICS IN CELL STRUCTURE AND FUNCTION
2 credits.

In-depth introduction to current topics in cell biology. Problems and issues confronting cell biologists are explored through reading and discussion of research papers. Topic varies each year.  
Requisites: Previous course in cell biology  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: Yes, unlimited number of completions  
Last Taught: Spring 2013

PATH 750 — CELLULAR AND MOLECULAR BIOLOGY/PATHOLOGY
2-3 credits.

The emphasis is on our current understanding of molecular and cellular mechanisms. Wherever possible, human diseases are used to illustrate the outcome at the organismal level of defects in these mechanisms. Lectures will draw from the current research literature and cover topics such as cell and tissue organization, intracellular sorting, cell migration and growth. Students in Cellular and Molecular Pathology graduate program must enroll for lectures, 2 credits and discussion section, 1 credit. All other students should enroll for lecture only, 2 credits.  
Requisites: Graduate or professional standing  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: No  
Last Taught: Spring 2017

PATH 751 — CELL AND MOLECULAR BIOLOGY OF AGING
3 credits.

Cellular and molecular pathophysiology of human disease typically afflicting the aged, such as Alzheimer’s, osteoporosis, Type II diabetes and arthritis, experimental systems to study aging.  
Requisites: BIOCHEM 501 or equiv  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: No  
Last Taught: Fall 2017

PATH 799 — INDEPENDENT READING AND RESEARCH
9 credits.

Requisites: Consent of instructor  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: Yes, unlimited number of completions  
Last Taught: Fall 2002

PATH 802 — HISTOPATHOLOGY FOR TRANSLATIONAL SCIENTISTS
3 credits.

This course is unique among the graduate curricula, introducing students to the pathogenesis of disease via integration of actual autopsy patient cases. Emphasis is placed on understanding the basic mechanisms of disease at the level of cell, organ, and body, as well as the morphologic expression patterns of selected common specific disease processes. In addition to attending twice-weekly lectures, students will participate in weekly autopsy gross organ conferences as well as microscopic review sessions. In this way, the concepts covered in lectures will be applied and reinforced in the interactive autopsy sessions. Students will also observe at least one full autopsy, gaining a three-dimensional understanding of structure and disease. The grade for this course is derived from a final multiple-choice exam and a short essay regarding an autopsy case. At the conclusion of this course, students should: gain an appreciation of how disease processes directly impact patients; be able to distinguish the morphologic patterns of normal versus pathologic tissues; be familiar with the pathogenesis of selected common disease processes; and recognize how basic laboratory research may be applied to specific disease processes.  
Requisites: Cellular and Molecular Pathology Graduate Student  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: No  
Last Taught: Fall 2017

PATH 803 — PATHOGENESIS OF MAJOR HUMAN DISEASES
3 credits.

This course will focus on disease pathogenesis and discussion of the leading disease research model. Throughout the course, we will combine expert clinicians, basic scientists, and literature review on specific major diseases.  
Requisites: Upper-level general cell biol crse or PATH 703  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: No  
Last Taught: Fall 2017

PATH 807 — IMMUNOPATHOLOGY: THE IMMUNE SYSTEM IN HEALTH AND DISEASE
2 credits.

Gain fundamental knowledge of immunopathology and molecular immunology medicine, and have an in-depth research experience that combines pathobiological and translational immunology research.  
Requisites: Graduate or professional standing  
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement  
Repeatable for Credit: No  
Last Taught: Spring 2015
PATH 809 — MOLECULAR MECHANISMS OF DISEASE
2 credits.
Focuses on molecular mechanisms of diseases. Course will focus on four modules: Neuroscience, cancer biology, growth factor/matrix biology, and immunology. Course will consist of a one hour lecture and a one hour group discussion.
Requisites: PATH 750 803
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

PATH 900 — SEMINAR
0 credits.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

PATH 901 — STUDENT SEMINAR / JOURNAL CLUB
1 credit.
Review of current publications on relevant topics selected by department faculty and trainer.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

PATH 920 — GENERAL PATHOLOGY CLERKSHIP-CSC
2-12 credits.
Requisites: 4th yr Med st
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

PATH 925 — LABORATORY MEDICINE: CLINICAL TOXICOLOGY ELECTIVE-CSC
2-12 credits.
Requisites: 4th yr Med st
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2012

PATH 926 — PATHOLOGY: CLINICAL MICROBIOLOGY-MARSHFIELD
2-12 credits.
Clinical elective for fourth year medical students.
Requisites: 4th yr Med st
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

PATH 951 — THE EXTRACELLULAR MATRIX, CELL STRUCTURE AND FUNCTION
2 credits.
Critical analysis in discussion format of topics in cell adhesion and cell matrix interactions that regulate cell signaling mechanisms, cell proliferation and cell invasion. Topics are introduced by lecture followed by assignment of papers from primary literature for discussion.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2007

PATH 990 — RESEARCH
1-8 credits.
For Grad and medical students desiring advanced pathology; work done under the direction of a senior staff member.
Requisites: Cons inst or Sr Med st
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017