PATH/PATH-BIO 210 — HIV: SEX, SOCIETY AND SCIENCE
3 credits.

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. Enroll Info: None
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: Fall 2020

PATH 399 — INDEPENDENT STUDY
1-4 credits.

Directed study projects for freshmen and sophomores. Enroll Info: None
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 2020

PATH 404 — PATOPHYSIOLOGIC 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. Enroll Info: None
Requisites: ANAT&PHY 335 or 435 (or PHYSIOL 335 or 435 prior to Fall 2018)
Repeatable for Credit: No
Last Taught: Spring 2021

PATH/M&ENVTOX/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. Enroll Info: None
Requisites: PHMCOL-M/POP HLTH/M&ENVTOX/ONCOLOGY/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 2021

PATH 699 — INDEPENDENT STUDY
1-4 credits.

Directed study projects for juniors and seniors. Enroll Info: None
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 2021

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. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2021

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. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2020
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. Enroll Info: None
Requisites: Declared in Cellular and Molecular Pathology graduate program
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2020

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. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2020

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. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2020

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. Enroll Info: None
Requisites: Declared in Cellular and Molecular Pathology graduate program
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2021

PATH 900 — SEMINAR
0 credits.
Weekly Seminar for graduate students, professional students, medical professionals. Enroll Info: None
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 2021

PATH 901 — STUDENT SEMINAR / JOURNAL CLUB
1 credit.
Review of current publications on relevant topics selected by department faculty and trainer. Enroll Info: None
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 2021

PATH 920 — GENERAL PATHOLOGY CLERKSHIP
2-4 credits.
Understand the central role that diagnostic pathology and laboratory testing play in medical care in all specialties. Review your course work in anatomic and clinical Pathology and add to your fund of knowledge. Familiarize yourself with the workings of a busy diagnostic tissue laboratory. Participate in daily "clinical-pathologist" discussions concerning the effects of various pathological conditions as they relate to specific clinical problems. Understand the role of anatomic and clinical pathology as they contribute to the understanding of disease processes. Enroll Info: None
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 2021
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>PATH 921</td>
<td>TRANSFUSION MEDICINE CUSTOMIZED</td>
<td>2</td>
<td>Maximize preparedness for residency by correlating basic science concepts with practical decision-making in clinical transfusion medicine. Tested topics are customized based on the student's specialty interests. Topics include hemostasis, immunology of transfusions, transfusion reactions, red blood cell (RBC) antigens and antibodies, product modifications, lab tests, indications, therapeutic apheresis, blood donation, special patient populations and circumstances such as obstetrics or neonates, and massive transfusion in surgery and trauma. Enroll Info: None</td>
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<tr>
<td>PATH 925</td>
<td>PATHOLOGY: CLINICAL MICROBIOLOGY-MARSHFIELD</td>
<td>2-12</td>
<td>Clinical elective for fourth year medical students. Enroll Info: None</td>
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<tr>
<td>PATH 929</td>
<td>GENETICS THROUGH THE LIFE CYCLE</td>
<td>4</td>
<td>The genome impacts human health and disease from the moment of conception throughout growth, development, and aging. This course offers a comprehensive overview of clinical laboratory testing in the fields of medical genetics and public health. Topics include how genetic testing is integrated into patient care, including prenatal genetics, newborn screening, genetic testing in children and adults, and oncology genetics. Students will develop a strong foundational knowledge of basic genetics principles, identify indications for genetic testing, interpret population screening results and the implications for public health, assess the utility of diagnostic testing, and recognize the limitations of genetic testing and clinical laboratory medicine. It is anticipated that students will incorporate these concepts, knowledge, experiences, and evidence in their future clinical practice. Enroll Info: None</td>
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<tr>
<td>PATH 950</td>
<td>INFECTIOUS DISEASE DETECTIVES</td>
<td>2</td>
<td>In much of the world, infection remains the leading cause of disease and death. While medicine has made great strides in the diagnosis and treatment of infection, new and deadly pathogens continue to emerge, and antibiotic resistance continues to grow. No matter what a physician's specialty, understanding principals of infectious disease manifestations, diagnosis and treatment are key. Enroll Info: None</td>
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<tr>
<td>PATH 960</td>
<td>PATHOLOGY FOR SURGEONS</td>
<td>2</td>
<td>The surgeon-pathologist relationship is an integral aspect of the surgical care process. The intraoperative and postoperative findings of the pathologist confirm that the appropriate course of action was taken, and this information determines what the surgeon will tell the patient and his or her family about the disease entity, prognosis, and recommended next steps. In this basic science selective, future surgeons will have the opportunity to refresh their understanding of essential anatomy and histology, and deepen their knowledge of disease pathophysiology. They will also engage in multiple practical learning activities such as cutting a frozen section, working up a transfusion reaction, staining and interpreting an FNA cytology slide, assisting in prospecting (grossing) surgical pathology and autopsy specimens and following up on the diagnosis/molecular testing/tumor board discussion to enhance their understanding of the pathologist's critical role in managing surgical patients. Enroll Info: None</td>
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<tr>
<td>PATH 962</td>
<td>THE MOLECULAR BASIS OF HEMATOLOGIC MALIGNANCIES</td>
<td>2</td>
<td>Understanding molecular mechanisms of hematologic disease, and developing a foundation in the principles of relevant molecular assays, is critical to providing appropriate patient care. Topics include bases of neoplastic disorders of the hematopoietic and lymphoid systems, how underlying molecular abnormalities contribute to the pathophysiology of these diseases, and the evolving spectrum of molecular and cytogenetic/FISH testing and other ancillary testing (such as flow cytometry), which are often utilized in the work-up of hematopoietic and lymphoid malignancies. Learn about strengths and weaknesses of these technologies, and how pathologists integrate results of molecular testing with the traditional histologic exam to produce accurate diagnoses and drive clinical decision making. Develop an understanding of how knowing the underlying molecular pathology of a hematopoietic or lymphoid malignancy can inform prognosis and guide therapy. Enroll Info: None</td>
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PATH 963 – WOMEN’S GLOBAL HEALTH: A FOCUS ON WOMEN’S CANCERS AND PUBLIC HEALTH INTERVENTIONS
2 credits.

Unique opportunity for fourth year medical students to develop an intervention project focused on women’s health and cancer prevention, diagnosis, treatment, or awareness globally and locally. Explore how women’s health is influenced by both biological and sociocultural factors. Observe components of diagnosis of women’s related cancers. Analyze molecular components of cancers used for diagnosis and treatment. Deconstruct the unique diseases that affect women throughout the life cycle and social factors that influence them. Enroll Info: None

Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2021

PATH 970 – GENOMICS, PROTEOMICS, AND METABOLOMICS: A DEEP DIVE INTO OMICS DATA ANALYSIS
2 credits.

Advances in medicine are increasingly being driven by "big data" analyses, including proteomics, genomics, and metabolomics. Basic knowledge of how to analyze these datasets can allow one to generate and test hypotheses that have the potential to transform a field. In this course, students will conduct individual data mining expeditions using a collection of large proteomics and metabolomics data sets. Formulate hypotheses about the interrelationships of molecules and their potential relationship to health, disease, and biological phenotypes. Basic background instruction on "omics" methodologies, heritability studies, and analytical methods will be provided. Provides the basic knowledge to carry out future 'omics analyses; using scientific inquiry to potentially transform the practice of medicine. Enroll Info: None

Requisites: MED SC-M 810, 811, 812 and 813; or Declared in Cellular and Molecular Pathology Graduate Program
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2021

PATH 990 – RESEARCH
1-8 credits.

For Grad and medical students desiring advanced pathology; work done under the direction of a senior staff member. Enroll Info: None

Requisites: Declared in Medicine program or Cellular and Molecular Pathology graduate program
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2021