Pathology

Chair
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Graduate degree: M.S. in pathology
Faculty: http://www.medicine.uiowa.edu/dept_primary_apr.aspx?appointment=Pathology
Web site: http://www.medicine.uiowa.edu/pathology/

The Department of Pathology offers education and training for a broad range of students, from undergraduates through postgraduate fellows and researchers. It provides basic pathology courses to health sciences students; a clinical training program for clinical laboratory scientists; a Master of Science program in pathology; residency training programs leading to American Board of Pathology certification in anatomic pathology and clinical pathology; fellowship training in pathology subspecialties; and postdoctoral research training in cellular and molecular pathology.

Undergraduate Education
Pathology courses are a major component of the University's Medical Laboratory Science Program, a Bachelor of Science program that trains medical laboratory scientists; see Medical Laboratory Science in the Catalog.

M.D. Student Training
The department provides five to seven 12-month fellowships for M.D. students (pathology externship), for students interested in careers as pathologists, and the Emory Warner Fellowship, a full-time research position in a facet of experimental pathology. It also offers clerkships for M.D. students in all areas of anatomical and clinical pathology.

Residency Program
The department offers 20 residency positions in pathology, which provide up to four years of training. Patients at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center are integral to the residency programs.

Residents gain experience in systematic rotation through the varied laboratory services, including surgical pathology, autopsy pathology, neuropathology, dermatopathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, molecular pathology, and transfusion medicine. They also have the opportunity to pursue one or two years of additional fellowship training in many pathology subspecialties. To learn more, see Education on the Department of Pathology web site.

Graduate Program of Study
- Master of Science in pathology

Master of Science
The Master of Science program in pathology requires a minimum of 30 s.h. of graduate credit, including 21 s.h. of classroom work and 9 s.h. earned for research. The program trains graduate students in cell and molecular biology. Graduates work as research scientists in a range of academic and commercial laboratories, including those in the rapidly expanding biotechnology sector. Others advance to doctoral-level study.

M.S. students pursue a core curriculum in cell and molecular biology as well as electives suited to their individual interests. They acquire contemporary research skills by pursuing a laboratory thesis project under the guidance of a faculty member. Currently, there are active research programs in immunology, microbiology, neuroscience, signaling and apoptosis, inflammation and vascular biology, tumor biology and cancer, and virology.

Most M.S. students complete their course of study in three years.

The department encourages applicants who have earned a Bachelor of Science with a major in biology, chemistry, biochemistry, clinical laboratory science, microbiology, or zoology. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College. They should have an undergraduate g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1100 on the Graduate Record Exam (GRE) General test.

For more information about graduate study, see Education on the Department of Pathology web site.

Postgraduate Training
The Department of Pathology offers postgraduate clinical fellowship programs in hematopathology, transfusion medicine, clinical microbiology, cytopathology, molecular genetics pathology, and surgical pathology for physicians who have completed residency training in pathology.

These fellowships consist of one to two years of diagnostic work and research.

The department provides postdoctoral research training in immunology, neuropathology, apoptosis, cancer biology, and clinical microbiology as well as in other areas of cellular and molecular pathology. These positions are open to individuals who have earned a Ph.D. or an M.D.

Facilities
The Department of Pathology is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. It administers more than 90,000 square feet of clinical laboratories at University of Iowa Hospitals and Clinics and has individual research and core facility laboratories, including histopathology and laser capture microscopy for cellular and molecular pathology research, in the Medical Research Center, Medical Laboratories, and at the Iowa City Veterans Affairs Medical Center. Also available are Carver College of Medicine research facilities for nucleic acid chemistry, hybridoma production, flow cytometry, ultrastructural studies, protein structure, image analysis, electron spin resonance, mass spectrometry, nuclear magnetic resonance, and laboratory animal care.
Courses

PATH:4150 Advanced Laboratory Practice 0,2,6 s.h.
Advanced laboratory practical skills. Requirements: acceptance to Clinical Laboratory Science Program.

PATH:4151 MLS Program Registration 0 s.h.
Requirements: admission to Medical Laboratory Science Program.

PATH:4152 MLS Theory, Application, and Correlation 0,3,5 s.h.
Theory, application, and correlation of medical laboratory science. Prerequisites: PATH:4150.

PATH:4154 Clinical Chemistry I 0,3 s.h.
Theory, practical application, technical performance, and evaluation of clinical chemistry laboratory procedures; correlation of laboratory data with diagnosis of disease. Prerequisites: PATH:4150.

PATH:4155 Clinical Chemistry II 0,3 s.h.
Advanced theory, practical application, technical performance, and evaluation of clinical chemistry laboratory procedures; correlation of laboratory data with diagnosis of disease. Prerequisites: PATH:4154.

PATH:4156 Clinical Hematology I 0,4 s.h.
Introduction to theory, practical application, technical performance, and evaluation of hemostatic and hemostasis procedures; correlation of laboratory data with diagnosis of disease. Prerequisites: PATH:4150.

PATH:4157 Clinical Hematology II 0,3 s.h.
Advanced theory, practical application, technical performance, and evaluation of hemostatic and hemostasis procedures; correlation of laboratory data with disease diagnosis. Prerequisites: PATH:4156.

PATH:4158 Clinical Microbiology I 0,4 s.h.
Introduction to theory, practical application, technical performance, and evaluation of procedures for isolation, identification, and susceptibility testing of infectious disease organisms in humans. Prerequisites: PATH:4150.

PATH:4159 Clinical Microbiology II 0,3 s.h.
Advanced theory, practical application, technical performance, and evaluation of procedures for isolation, identification, and susceptibility testing of infectious disease organisms in humans. Prerequisites: PATH:4158.

PATH:4160 Clinical Immunology 0-1 s.h.
Theory, application, and evaluation of immunological components, principles, and methodologies used to assess immune dysfunction; theory and application of molecular diagnostic tools. Prerequisites: PATH:4150.

PATH:4162 Clinical Immunohematology I 0,3 s.h.
Introduction to theory, practical application, technical performance, and evaluation of blood bank procedures required for storage and transfusion of blood and blood components. Prerequisites: PATH:4150.

PATH:4163 Clinical Immunohematology II 0,3 s.h.
Clinical immunohematology for laboratory science. Prerequisites: PATH:4162.

PATH:4164 Phlebotomy for Clinical Laboratory Science 0-1 s.h.
Theory, practical application, technical performance, and evaluation of procedures used in collecting, handling, and processing blood specimens. Prerequisites: PATH:4150.

PATH:4166 Urine and Body Fluid Analysis 0-1 s.h.
Theory, practical application, technical performance, and evaluation of procedures used in analyzing urine and other body fluids, including cerebrospinal, synovial, serous, and amniotic fluids. Prerequisites: PATH:4150.

PATH:4170 Clinical Laboratory Management I 0,2 s.h.
Theory, practical application, technical performance, and evaluation of laboratory management principles and associated models; critical thinking, problem solving, leadership skills. Prerequisites: PATH:4150.

PATH:4171 Clinical Laboratory Management II 0,2,3 s.h.
Advanced theory, application, technical performance, and evaluation of laboratory management principles and associated models; critical thinking, problem solving, leadership skills. Prerequisites: PATH:4150.

PATH:4172 Molecular Biology Methods 0-1 s.h.
Introduction to theory, practical application, and evaluation of molecular biology methods.

PATH:5260 Translational Histopathology 3 s.h.
Didactic sessions on human comparative histology, molecular and cellular pathology, and animal model applications; laboratory sessions on microscopy, histology, histotechnology, and immunohistochemistry, with group discussions of model papers; experience in scientific writing and oral presentation skills; for students who plan to investigate experimental models of human disease. Prerequisites: BISC:5201 and BISC:5203.

PATH:5270 Pathogenesis of Major Human Diseases 3 s.h.
Critical analysis of pathogenesis models in a series of major human diseases; clinical presentation, analysis of cellular and molecular events leading to the disease, discussion of key papers. Offered spring semesters of even years. Prerequisites: BISC:5201 and BISC:5203.

PATH:6220 Seminar in Pathology 1 s.h.
Current research and literature. Requirements: pathology graduate standing.

PATH:7001 Molecular and Cellular Biology of Cancer 3 s.h.
Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses; tumor immunology, anticancer therapies. Offered spring semesters of odd years. Requirements: strong basic science background. Same as FRRB:7001.
PATH:7211 Research in Pathology  arr.
Basic aspects of pathology or clinical patient material; emphasis on experimental design, methods, literature review, obtaining formal answers to specific questions. Requirements: M.D. enrollment or graduate standing.

PATH:8007 Medical Student Fellowships in Pathology (Externships)  0 s.h.
First-hand experience in autopsy, surgical and clinical pathology, teaching, and research to further understanding of disease mechanisms, normal and pathologic anatomy, laboratory use.

PATH:8008 Warner Fellowship in Experimental Pathology  0 s.h.
One-year, full-time membership in established research laboratory in the Department of Pathology or collaborating laboratory. Requirements: M.D. enrollment.

PATH:8133 Introduction to Human Pathology for Graduate Students  4 s.h.
Human disease; basic disease processes, organ-related and multisystem diseases; case analysis. Offered fall semesters.

PATH:8301 Laboratory Medicine in Clinical Practice  arr.
Issues in appropriate use of clinical laboratory and pathology resources in the primary care setting; case-based approach. Requirements: third- or fourth-year M.D. enrollment.

PATH:8401 Autopsy Pathology Clerkship  arr.
PATH:8402 Hematopathology Clerkship  arr.
PATH:8403 Surgical Pathology Clerkship  arr.
PATH:8404 Blood Bank Clerkship  arr.
PATH:8498 Pathology On Campus  arr.
PATH:8499 Pathology Off Campus  arr.