PATHOLOGY (PATH)

Additional Resources

- Catalog Course Search (https://catalog.unc.edu/course-search/)
- Course Numbering Guide (https://catalog.unc.edu/courses/course-numbering/)
- Scheduled Classes (https://reports.unc.edu/class-search/)
- Historical Course Record (https://reports.unc.edu/historical_course_record/)

Courses

PATH 229. Introduction to the Pathology of Human Disease. 3 Credits.
Open to all undergraduates. An overview of basic human molecular and cellular biology in the setting of common human diseases. The course emphasizes how an understanding of disease mechanisms provides the knowledge base for informed use of modern health care. Does not count as a course in the major.

Rules & Requirements
Requisites: Prerequisite, BIOL 103 or BIOL 220 or permission of Instructors.
Grading Status: Letter grade.

PATH 426. Biology of Blood Diseases. 3 Credits.
An introduction to the biology and pathophysiology of blood and the molecular mechanisms of some human diseases: anemias; leukemias; hemorrhagic, thrombotic, and vascular disorders; and HIV disease/AIDS. Honors version available.

Rules & Requirements
Requisites: Prerequisites, BIOL 205; or BIOL 103 and BIOL 104 and BIOL 240; or permission of the instructor for students lacking the prerequisite.
Grading Status: Letter grade.
Same as: BIOL 426.

PATH 462. Experimental Pathology. 1-9 Credits.
Hours, credits, and instructor to be arranged on an individual basis. Hands-on research experience in a predetermined instructor's laboratory. Students learn and apply specific techniques and participate in investigations of molecular mechanisms responsible for disease processes (pathobiology). Contact the director of graduate studies in pathology for information. May be repeated.

Rules & Requirements
Grading Status: Letter grade.

PATH 710. Advanced Light Microscopy. 3 Credits.
An intensive and comprehensive hands-on laboratory-oriented course in light microscopy for researchers in biology, medicine, and materials science. This course will focus on advanced quantitative fluorescence microscopy techniques used for imaging a range of biological specimens, from whole organisms, to tissues, to cells, and to single molecules. This course emphasizes the quantitative issues that are critical to the proper interpretation of images obtained with light microscopes.

Rules & Requirements
Repeat Rules: May be repeated for credit. 6 total credits. 1 total completions.
Grading Status: Letter grade.
Same as: CBPH 710, NBIO 710.

PATH 713. Molecular and Cellular Pathophysiological Basis of Disease: Mechanisms of Disease. 3 Credits.
A graduate course on cell injury and pathogenesis of disease with emphasis on basic mechanisms at the molecular, cellular, and organismal levels. Three lecture hours with a complementary two-and-a-half-hour laboratory each week.

Rules & Requirements
Requisites: Co-requisite, PATH 714L.
Grading Status: Letter grade.

PATH 714L. Molecular and Cellular Pathophysiological Basis of Disease: Laboratory I. 2 Credits.
A graduate-level laboratory course on basic mechanisms of disease pathogenesis, emphasizing cell and tissue-based examples of major disease mechanisms.

Rules & Requirements
Requisites: Pre- or corequisite, PATH 713.
Grading Status: Letter grade.

PATH 723. Practical Considerations for Translational Research. 2 Credits.
Permission of the instructor. A multi-disciplinary course providing students principles involved in translating basic science into clinically applicable diagnostics and therapies to improve human disease outcomes. The course is focused on bioinformatics, bioethics, trial design, FDA approval, and commercialization of laboratory diagnostics.

Rules & Requirements
Grading Status: Letter grade.

PATH 725. Cancer Pathobiology. 3 Credits.
Permission of the instructor. This course examines pathobiological features of cancer. An interdisciplinary approach draws from epidemiology, genetics, molecular biology, and clinical medicine to investigate cancer etiology, pathogenesis, prevention, and treatment.

Rules & Requirements
Grading Status: Letter grade.

PATH 726. Human Environmental Disease. 1-3 Credits.
This course will study human disease processes that are induced or exacerbated by our environment. Environmental disease stressors include solar radiation, air and water pollution, bioreactive substances in foods, pesticides, metals, dusts, particles, and allergens. Lectures will emphasize epidemiology, mechanisms of toxicity, and human disease pathogenesis.

Rules & Requirements
Grading Status: Letter grade.

PATH 730. Cancer Immunology. 2 Credits.
The goal of this graduate-level course is to learn about recent advances in the field, acquire specialized knowledge and to develop a foundation of critical thinking skills in cancer immunology. The course format will combine lectures and in-class discussion of assigned readings, with particular emphasis on state-of-the art research methods. Students should be familiar with modern concepts of immunology and should consult with the course director before enrolling. The course meets for half a semester.

Rules & Requirements
Grading Status: Letter grade.
Same as: MCRO 730.

PATH 766. Current Topics in Cardiovascular Biology. 3 Credits.
Permission of the instructor. Second-year graduate students only. This manuscript-based course will emphasize recent advances in heart and blood vessel development, the molecular mechanisms that regulate cardiovascular cell function, and current methodologies in the cardiovascular field. It will be team taught by members of UNC's McAllister Heart Institute.

Rules & Requirements
Grading Status: Letter grade.

PATH 767. Molecular and Cellular Biology of Cardiovascular Diseases. 3 Credits.
Second year graduate students or permission of the instructor. Course reviews the molecular, cellular, and organismal pathogenesis of cardiovascular disease. It is team-taught by faculty with topic expertise and stresses primary literature and current methodologies. May be taken as a companion to PATH 766 or on its own.

Rules & Requirements
Grading Status: Letter grade.

PATH 770. Mouse Efficacy and Disease Models. 3 Credits.
The Mouse Efficacy and Disease Models class is designed for second to third year students who intend on performing in vivo animal research. This course is intended to familiarize graduate students in the issues associated with the development and interpretation of mouse models and also an introduction to alternative models.

Rules & Requirements
Requisites: Prerequisites, Students must be earning a degree in a Biological & Biomedical Sciences Program (BBSP) with preference given to students in the Pathobiology and Translational Science Graduate Program; students should also have selected a thesis lab prior to enrolling in this class.
Grading Status: Letter grade.

PATH 792. Seminar in Carcinogenesis. 2 Credits.
Permission of the instructor. Survey of classical and current literature on selected critical issues in carcinogenesis. Students discuss experimental methods and observations as well as theories and generalizations. Two seminar hours a week.

Rules & Requirements
Grading Status: Letter grade.
Same as: TOXC 792.

PATH 801. Critical Thinking in Science: From Hypothesis to Grant Proposal. 3 Credits.
This journal club-style discussion course explores the molecular mechanisms regulating normal cell cycle progression and how their deregulation leads to cancer. We will trace the historical development of the cell cycle field, illustrating how scientific inquiry has shaped current paradigms. This course is ideal for students interested in cell proliferation and cancer biology, regardless of prior knowledge.

Rules & Requirements
Grading Status: Letter grade.
Same as: GNET 801.

PATH 850. Scientific Writing in Pathobiology and Translational Science. 2 Credits.
The students will develop a research plan based on their thesis project and write a 6-page grant in the style of a NRSA F31 application. Students will learn to edit and critique their fellow student's proposals which will help prepare the students for writing and editing their preliminary exam and future grant applications. Restricted to students currently earning a degree in a Biological & Biomedical Sciences Program (BBSP) with preference given to students in the Pathobiology and Translational Science Graduate Program.

Rules & Requirements
Grading Status: Letter grade.

PATH 890. Special Topics in Pathology. 1-3 Credits.
A study in special fields under the direction of the faculty. Offered as needed for presenting material not normally available.

Rules & Requirements
Repeat Rules: May be repeated for credit. 6 total credits. 3 total completions.
Grading Status: Letter grade.

PATH 900. Research in Pathology. 2-12 Credits.
Permission of the department. This is a research course in which advanced students in pathology carry on investigations on mechanisms of disease. Six or more laboratory hours a week, to be arranged. May be repeated.

Rules & Requirements
Repeat Rules: May be repeated for credit.
Grading Status: Letter grade.

PATH 920. Seminar in Interdisciplinary Vascular Biology. 1 Credits.
Permission of the instructor. Participants in the Interdisciplinary Vascular Biology Training Program only. Students will be required to present their thesis work as a formal seminar, give an introductory lecture to introduce their project (in cooperation with their thesis advisor), and to attend and discuss the seminars of other students.

Rules & Requirements
Repeat Rules: May be repeated for credit. 6 total credits. 6 total completions.
Grading Status: Letter grade.

PATH 940. Pathobiology and Translational Science Seminar. 1 Credits.
A series of scientific seminars by graduate students, Post-doctoral Fellows, research faculty, and others in the Department of Pathology and Laboratory Medicine. Students will develop the skills necessary to deliver an effective and engaging oral scientific presentation of their research. They will become proficient in understanding the pathogenesis of the wide range of diseases being studied in the department, and the methodologies employed to determine the pathogenesis of those diseases.

Rules & Requirements
Repeat Rules: May be repeated for credit. 7 total credits. 7 total completions.
Grading Status: Letter grade.

PATH 993. Master's Research and Thesis. 3 Credits.
May be repeated.

Rules & Requirements
Repeat Rules: May be repeated for credit.

PATH 994. Doctoral Research and Dissertation. 3 Credits.
Rules & Requirements
Repeat Rules: May be repeated for credit.