PATH (PATH)

Courses

PATH 101. Cancer Biology. 4 Units.
Experimental approaches to understanding the origins, diagnosis, and treatment of cancer. Focus on key experiments and discoveries with emphasis on genetics, molecular biology, and cell biology. Topics include carcinogens, tumor virology, oncogenes, tumor suppressor genes, cell cycle regulation, angiogenesis, invasion and metastasis, cancer genomics, cancer epidemiology, and cancer therapies. Discussion sections based on primary research articles that describe key experiments in the field. Satisfies Central Menu Areas 1 or 2 for Bio majors. Prerequisite: Biology or Human Biology core or equivalent, or consent of instructor.
Same as: CBIO 101

PATH 103Q. Lymphocyte Migration. 1 Unit.
Preference to sophomores. Lymphocytes migrate from blood vessels into tissues to participate in immune surveillance and the development of inflammation. The lymphocyte and blood vessel endothelia molecules that control lymphocyte migration, and are implicated in the development of human diseases such as asthma, type 1 diabetes, and multiple sclerosis are discussed.

PATH 199. Undergraduate Research. 1-18 Unit.
Students undertake investigations sponsored by individual faculty members. Prerequisite: consent of instructor.

PATH 201. Stem Cells in Development and Disease. 1-2 Unit.
Molecular and cellular mechanisms underlying the basic self-renewal and differentiation properties of stem cells in multiple tissues and organisms. How abnormal stem cell behavior may contribute to diseases such as cancer. How to manipulate stem cell behavior in vitro or in vivo for therapeutic purposes. Classical papers and recent literatures in the field of stem cell biology. Open to graduate, medical, and advanced undergraduate students. Prerequisite: consent of instructor.

PATH 213. Gross Autopsy Pathology Laboratory. 2-3 Units.
Examine/discuss unfixed dissected organs from current autopsies and correlate morphologic findings with the clinical history. Students view postmortem examinations and may participate (in a small group) in one postmortem examination with the assistance of residents and staff, and present the case to the class. Class scheduling is flexible. Additional unit for participation in a postmortem examination. Class may not be repeated. Prerequisite: HHD220.

PATH 218. Computational Analysis of Biological Information: Introduction to Python for Biologists. 2 Units.
Computational tools for processing, interpretation, communication, and archiving of biological information. Emphasis is on sequence and digital microscopy/image analysis. Intended for biological and clinical trainees without substantial programming experience.
Same as: GENE 218, MI 218

PATH 233. The Biology of Small Modulatory RNAs. 2 Units.
Open to graduate and medical students. Explores recent progress and unsolved questions in the field of RNA interference and microRNA biology. Students are required to read assigned primary literature before each class and actively participate in guided discussions on related technical and conceptual issues during class meetings. Assignments include critiques of assigned papers and developing a novel research proposal.
Same as: GENE 233, MI 233

PATH 234. Fundamentals of RNA Biology. 2 Units.
For graduate or medical students and (if space allows) to active participants from other segments of the Stanford Community (e.g., TGR students); undergraduates by instructor consent. Fundamental issues of RNA biology, with the goal of setting a foundation for students to explore the expanding world of RNA-based regulation. Each week a topic is covered by a faculty lecture and journal club presentations by students.
Same as: GENE 234, MI 234

PATH 240. Clinical Studies in Pathology I. 3-9 Units.
A broad exposure to the practice of pathology in an academic medical center. Students are assigned a faculty mentor and work closely with pathology residents, fellows and faculty. Two months are spent in surgical pathology where students help examine surgical resection specimens and biopsies and participate in making a final diagnosis. One month is spent in autopsy pathology where students perform autopsy prosections and formulate final anatomic diagnoses under the supervision of faculty. This course must be combined with Clinical Studies in Pathology II, and two additional quarters of PATH 399, Directed Research, to fulfill a 12 month Post-Sophomore year Fellowship in Pathology. Prerequisite: MD candidate; instructor consent.

PATH 241. Clinical Studies in Pathology II. 3-9 Units.
An in-depth exposure to the practice of pathology for students who have completed Clinical Studies in Pathology I. Students are assigned a faculty mentor and work closely with pathology residents, fellows and faculty. Two months are spent in surgical pathology where students help examine surgical resection specimens and biopsies and participate in making a final diagnosis. One month is spent in sub-specialty areas of pathology that include dermatopathology, neuropathology, renal pathology, lymph node pathology or cytology. This course must be combined with Clinical Studies in Pathology I and two additional quarters of PATH 399, Directed Research, to fulfill a 12-month Post-Sophomore year Fellowship in Pathology. Prerequisite: consent of instructor and successful completion of Clinical Studies in Pathology I (PATH 240).

PATH 280. Early Clinical Experience in Pathology. 1-2 Unit.
Provides an observational experience as determined by the instructor and student. Prerequisite: consent of instructor.

PATH 290. Pediatric Nonmalignant Hematology and Stem Cell Biology. 2 Units.
PEDIATRIC hematologic disorders provide an important paradigm to study other developmental systems. Subjects covered include hematopoiesis, basic stem cell biology, endothelial cell development, alternative models to study nonmalignant hematopoiesis and stem cell biology (zebrafish and mouse), defects in white cell function, basic research in stem cell transplantation, state of the art methods in nonmalignant hematopoiesis and stem cell biology (genomics, proteomics, and gene therapy), and bioinformatics. The course is also open to graduate students and junior and senior undergraduate students who are pre-med.

PATH 299. Directed Reading in Pathology. 1-18 Unit.
Prerequisite: consent of instructor.

PATH 370. Medical Scholars Research. 4-18 Units.
Provides an opportunity for student and faculty interaction, as well as academic credit and financial support, to medical students who undertake original research. Enrollment is limited to students with approved projects.

PATH 399. Graduate Research. 1-18 Unit.
Students undertake investigations sponsored by individual faculty members. Opportunities at the molecular, cellular, and clinicopathologic levels. Prerequisite: consent of instructor.