Details of Courses Co-listed as Medical School and Graduate School Courses
(These can be taken for credit in years 1 & 2 without scheduling conflicts)
**These courses are being offered for credit as far as we know**

Course selections for students in lab and/or on the wards
MEDC 999 01 (CRN) Courses in School of Medicine Staff 2 HTBA (2nd years)
QUAL 999 01 (CRN) Preparing for Qualifying Exams Staff 2 HTBA
CAND 999 01 (CRN) Prep: Admission to Candidacy Staff 2 HTBA
DISR 999 01 (CRN) Diss Research - in Residence Staff 2 HTBA
MEDR 999 01 (CRN) Clinical Clerkships Staff 2 HTBA

Suggested courses for incoming 1st years (please do not register until after you meet with Drs. Kazmierczak and Gorelick on August 9th):
MEDC 999 01 (CRN) Courses in School of Medicine Staff 2 HTBA (1st and 2nd years)
CBIO 502 01 (10530) Molecules to Systems Peter Takizawa, 3 HTBA
CBIO 600 01 (14007) Frontiers in Medicine Fred Gorelick, James Jamieson Th 4.30-6.00
MB&B 800 01 (14587) Adv Topics Molecular Medicine Susan Baserga, Konigsberg M 11.00-1.00
(PLEASE NOTE: you must also let Leigh Cromley know that you want to take the advanced class).

NSCI 501 01 (CRN) Principles of Neuroscience DiLeone, Louvi T/F 2:15-3:45 (for those interested in Neuroscience)

B&BS 501: Responsible Conduct of Research: You will register for this in the Spring, however, there is ONE session in the Fall. September 27th; 9 a.m.

Cell Biology 600/601: “Frontiers in Medicine,” a graduate credit course for first-year MD-PhD students and an elective course for medical students, emphasizes the connections between basic and clinical science, human physiology and disease. It parallels the content of Yale Medical School’s first-year courses and is designed for students who are considering a career in medical research or who choose to explore scientific topics in depth, learn about cutting-edge research and improve their presentation skills. Discussions cover the challenges faced in research, selecting your topic and pursuing an academic career. Enrollment is limited to those who have taken or are taking the Masters Courses. Select topics are presented by eminent faculty who serve as excellent role models for your academic careers. In most sessions, 2 students review relevant manuscripts under the guidance of a faculty mentor and present the material to the group. Prior to the start of class, students are required to submit questions concerning techniques and concepts that may not be clear from the assigned papers. These questions will then be addressed during the presentation. Student evaluations are graded on attendance, participation in group discussions and formal presentations. The course runs from September to mid-May and provides graduate credit if needed. The organizational meeting and introduction is Thursday, August 31 at 4:30 pm (most sessions will be in Hope 203 at YSM). The class will meet on most Thursdays until mid-May from 4:30 -6:00pm. Fred Gorelick, George Lister, Karin Finberg, and Jonathan Bogan are organizers. Durga Thakral, Rebecca Treger, and William Culligan are MD-PhD students and will be our TAs in respective order. Yolanda Quiñones is the course coordinator (Yolanda.Quiñones@yale.edu).

NBIO 701 [01]/NSCI 701 [01], Principles of Neuroscience Ralph DiLeone, Angeliki Louvi
General neuroscience seminar: lectures, readings, and discussion of selected topics in neuroscience. Emphasis is on how approaches at the molecular, cellular, physiological, and organismal levels can lead to understanding of neuronal and brain function. T,F 2:15–3:45
**PATH 650b, Cellular and Molecular Biology of Cancer**  
David Stern, Qin Yan  
A comprehensive survey of cancer research from the cellular to the clinical level. The relation of cancer to intracellular and intercellular regulation of cell proliferation is emphasized, as are animal models for cancer research. Background in molecular genetics and cell biology is assumed. Open to advanced undergraduates with permission of the organizers. MWF 1–2

**PATH 690a, Molecular Mechanisms of Disease**  
Narendra Wajapeyee and Demetrios Braddock  
This course covers aspects of the fundamental molecular and cellular mechanisms underlying various human diseases. Many of the disorders discussed represent major forms of infectious, degenerative, vascular, neoplastic, and inflammatory disease. Additionally, certain rarer diseases that illustrate good models for investigation and/or application of basic biologic principles are covered in the course. The objective is to highlight advances in experimental and molecular medicine as they relate to understanding the pathogenesis of disease and the formulation of therapies. T-TH 2–3:30

**MB&B 800 [01], Advanced Topics in Molecular Medicine**  
Susan Baserga, William Konigsberg.  
The seminar, which covers topics in the molecular mechanisms of disease, illustrates timely issues in areas such as protein chemistry and enzymology, intermediary metabolism, nucleic acid biochemistry, gene expression, and virology. M.D. and M.D./Ph.D. students only. Prerequisite: biochemistry (may be taken concurrently).

**NSCI 510b/NB 500b, Structural and Functional Organization of the Human Nervous System**  
Charles Greer, Michael Schwartz  
An integrative overview of the structure and function of the human brain pertaining to major neurological and psychiatric disorders. Neuroanatomy, neuropathology, and clinical correlations are interrelated to provide essential background in the neurosciences. Lectures in neurocytology and neuroanatomy survey neuronal organization in the human brain, with emphasis on long fiber tracts related to clinical neurology. Two-hour laboratory sections in close collaboration with faculty members. Lectures in neurophysiology cover various aspects of neural function at the cellular level, with a strong emphasis on the mammalian nervous system. Clinical correlations consist of regular sessions given by one or two faculty members representing both basic and clinical sciences. These sessions relate neurological symptoms to cellular processes in various diseases of the brain. Variable class schedule; contact course instructor. Registration for this course is by permission of the instructor.

**STAT 645 [02], Statistical Methods in Genetics and Bioinformatics**  
Hongyu Zhao  
Introduction to problems, algorithms, and data analysis approaches in computational biology and bioinformatics; stochastic modeling and statistical methods applied to problems such as mapping disease-associated genes, analyzing gene expression microarray data, sequence alignment, and SNP analysis. Statistical methods include maximum likelihood, EM, Bayesian inference, Markov chain Monte Carlo, and some methods of classification and clustering; models include hidden Markov models, Bayesian networks, and the coalescent. The limitations of current models, and the future opportunities for model building, are critically addressed.  
**Prerequisite:** STAT 538a, 542b, or 661a. Prior knowledge of biology is not required, but some interest in the subject and a willingness to carry out calculations using R is assumed.

**CB&B 740 [01], Clinical and Translational Informatics**  
Richard Shiffman, Michael Krauthammer
The course provides an introduction to clinical and translational informatics. Topics include (1) overview of biomedical informatics, (2) design, function, and evaluation of clinical information systems, (3) clinical decision making and practice guidelines, (4) clinical decision support systems, (5) informatics support of clinical research, (6) privacy and confidentiality of clinical data, (7) standards, (8) issues in defining the clinical phenotype, and (9) topics in translational bioinformatics. Permission of the instructor required.

**CB&B 752 [01]/CPSC 752au/MB&B 752au/MCDB 752au, Bioinformatics: Practical Application of Simulation and Data Mining** Mark Gerstein

Bioinformatics encompasses the analysis of gene sequences, macromolecular structures, and functional genomics data on a large scale. It represents a major practical application for modern techniques in data mining and simulation. Specific topics to be covered include sequence alignment, large-scale processing, next-generation sequencing data, comparative genomics, phylogenetics, biological database design, geometric analysis of protein structure, molecular-dynamics simulation, biological networks, normalization of microarray data, mining of functional genomics data sets, and machine learning approaches for data integration. **Prerequisites:** biochemistry and calculus, or permission of the instructor.