

Division of Medical Sciences

Ph.D. Programs at Harvard Medical School

First Meeting of Courses

Fall Term 2015-2016

FAS Study Card Deadline: Thursday, September 10 at 11:59pm

Add Course Deadline: Monday, October 19, 2015

Drop Course Deadline: Tuesday, October 27, 2015

Holidays:

Columbus Day: Monday, October 12

**Classes will be held on Veteran's Day

Online Registration: August 17 at 9:00am – August 27 at 11:59pm

For information: Call **617-432-4134** or email **dms_courses@hms.harvard.edu**

**DIVISION OF MEDICAL SCIENCES
Ph.D. Programs at Harvard Medical School
2015-2016 Fall Term Course Offerings**

BBS 230. Analysis of the Biological Literature

Michael Demian Blower, Adrian Salic, Dipanjan Chowdhury, Stephen Elledge, Jesse Gray, Radhika Subramanian, Peter Hammerman, Andreas Herrlich, Roberto Chiarle

BBS 301. Embedded Teaching Practicum (for Graduate Teaching Assistants)

Johanna Gutlerner and Ronald Jason Heustis

BBS 330. Critical Thinking and Research Proposal Writing

Monica P. Colaiácovo and members of the Medical School Faculty
Teaching Assistant: Doris Lui

BCMP 200. Principles of Molecular Biology

Joseph Loparo, Johannes Walter, Timur Yusufzai, Dipanjan Chowdhury, Stirling Churchman, Melissa Leger-Abraham
Curriculum Fellow: Jason Heustis

BCMP 218. Molecular Medicine

George Daley, David Cohen, and Irving London
Teaching Assistant: Alissa D'Gama

BCMP 230. Principles and Practice of Drug Development

Lee L. Rubin and Stan Neil Finkelstein

Cell Biology 226. Concepts in Development, Self-Renewal, and Repair

Iain A. Drummond and Amar Sahay

Genetics 201. Principles of Genetics

Fred Winston, Thomas G. Bernhardt, Matthew Harris, Maxwell G. Heiman, Mitzi I. Kuroda, and Steven A. McCarroll
Curriculum Fellow: Emily Gleason

HBTM 201. Tumor Pathophysiology and Transport Phenomena - A Systems Biology Approach

Rakesh Jain
Teaching Assistant: Ivy Chen

HBTM 235. Principles of Human Disease: Physiology and Pathology

Constance L. Cepko and members of the Medical School Faculty
TA's: Sam Linder and Katie Richardson

Immunology 201. Principles of Immunology

Thorsten Mempel, Ulrich H. Von Andrian, and Michael Carroll

Immunology 301. Immunology Seminar

Michael C. Carroll and William Nicholas Haining

Medical Sciences 250ab. Human Functional Anatomy

Lee Gehrke

Microbiology 205. Mechanisms of Microbial Pathogenesis

Clyde S. Crumpacker II and members of the Department

Microbiology 214. Mechanisms of Bacterial Pathogenesis and Host Immune Response

Marcia Goldberg, Michael Starnbach, Jonathan Kagan, and Darren Higgins
Curriculum Fellow: Bradley Coleman

Neurobiology 200. Neurobiology

John A. Assad, Matthew P. Frosh, Jeffrey R. Holt, Rosalind A. Segal, and Ziv William

Neurobiology 220. Cellular Neurophysiology

Bruce P. Bean, Wade G. Regehr, Bernardo L. Sabatini, and Gary I. Yellen

Neurobiology 230. Visual Recognition: Computational and biophysical perspective

Gabriel Kreiman

SGBT 200. Acoustics of Speech and Hearing

John J. Rosowski and Christopher A. Shera

SGBT 201. Biology of the Inner Ear

M. Charles Liberman and Stephane Maison

SGBT 206. Molecular Biology of the Auditory System

Albert Edge

Virology 200. Introduction to Virology

Max L. Nibert, Elliott D. Kieff, David M. Knipe and Priscilla L. Yang

Virology 202. Proposal Writing

Benjamin Gewurz, Galit Alter, James DeCaprio, and Frederick C. Wang

OTHER COURSES OF INTEREST:

Systems Biology 200. Dynamic and Stochastic Processes in Cells

Johan M. Paulsson and Jeremy M. Gunawardena

Systems Biology 204. Biomolecular Engineering and Synthetic Biology

Peng Yin, William Shih, Pamela A. Silver, and George M. Church

Biological and Biomedical Sciences (BBS)

BBS 230. Analysis of the Biological Literature

Michael Demian Blower, Adrian Salic, Stephen Elledge, Roberto Chiarle, Dipanjan Chowdhury, Jesse Gray, Radhika Subramanian, Andreas Herrlich, Peter Hammerman

4 units

(Fall term). Tu., Th., 3-6.

Students participate in intensive small group discussions focused on the critical analysis of basic research papers from a wide range of fields including biochemistry, cell and developmental biology, genetics, and microbiology. Papers are discussed in terms of their background, significance, hypothesis, experimental methods, data quality, and interpretation of results. Students will be asked to propose future research directions, to generate new hypotheses and to design experiments aimed at testing them. For the midterm and final exams the students will have to submit written critiques of recent papers from the literature, with an emphasis on proposing new experimental directions to test the models proposed in the papers.

Note: This course is required for first year BBS students, and is open only to BBS students.

Fall 2015

First Meeting: Thursday, September 3, 3:00 P.M.

Final Meeting: Thursday, December 3

First Meeting Location: TMEC 250

Course Heads: Michael Blower, mblower@molbio.mgh.harvard.edu, and Adrian Salic, adrian_salic@hms.harvard.edu

BBS 301. Embedded Teaching Practicum (for Graduate Teaching Assistants)

Johanna Gutlerner and Jason Heustis

4 units

(Fall term). Hours to be arranged based on student availability.

Course for TAs currently teaching in an approved BBS Core Course. The embedded teaching practicum provides practice-based training in facilitating a group discussion; professionalism in the classroom; curriculum design, course evaluation and assessment development; and preparation for teaching throughout and beyond time in graduate school. Teaching assistants are provided training and experience in the development of an early-career teaching philosophy.

Note: TAs should contact Jason Heustis, ronald_heustis@hms.harvard.edu

Fall 2015

First Meeting: To be arranged based on student availability

Final Meeting: To be arranged based on student availability

Location: To be finalized based on student availability.

Course Heads: Johanna Gutlerner, johanna_gutlerner@hms.harvard.edu

Lecturer/Instructor: Please contact Jason Heustis, ronald_heustis@hms.harvard.edu

BBS 330. Critical Thinking and Research Proposal Writing

Monica P. Colaiácovo and members of the Medical School Faculty

4 units

(Fall term). Time to be arranged.

A small group tutorial systematically guiding students in the writing of original, hypothesis-driven research proposals from initial topic selection through completion of a final draft.

Note: This course is required for second year BBS students; others need permission of the instructor. Dates, times, and locations for all sessions (except for Session 1, see below) will be determined by the faculty running the tutorial sessions. Students will be able to sign up for their specific groups on a first-come, first-served basis. The BBS office will coordinate this process. Group assignments will be posted on the course website.

Fall 2015

First meeting: Wednesday, September 9, NRB room 350, 2:30-4:00 pm.

Final meeting: Friday, December 18, 2015

First Meeting Location: NRB, Room 350

Course Head: Monica P. Colaiacovo, mcolaiacovo@genetics.med.harvard.edu

Biological Chemistry and Molecular Pharmacology

BCMP 200. Principles of Molecular Biology

Joseph Loparo, Johannes Walter, Timur Yusufzai, Dipanjan Chowdhury, Stirling Churchman, Melissa Leger-Abraham

4 units. Enrollment limited to 80.

(Fall term). M., W., F., 10:45-12:15.

An advanced treatment of molecular biology's Central Dogma. Considers the molecular basis of information transfer from DNA to RNA to protein, using examples from eukaryotic and prokaryotic systems. Lectures, discussion groups, and research seminars.

Note: Offered jointly with the Medical School as BP 723.0.

Prerequisite: Intended primarily for graduate students familiar with basic molecular biology or with strong biology/chemistry background.

Fall 2015

First Meeting: Wednesday, September 2, 2015

Final Meeting: Friday, December 11, 2015

First Meeting Location: Cannon Room, Building C

Course Head: Joseph Loparo, joseph_loparo@hms.harvard.edu

Curriculum Fellow: Jason Heustis, ronald_heustis@hms.harvard.edu, (office) 617-432-5773

BCMP 218. Molecular Medicine

George Q. Daley, David E. Cohen, and Irving M. London

4 units. Enrollment limited to 35.

(Fall term). Tu., 1–3.

A seminar on various human diseases and their underlying genetic or biochemical bases. Primary scientific papers discussed. Lectures by faculty and seminars conducted by students, faculty supervision.

Note: Faculty mentors will guide student-led discussions of the papers. Jointly offered with the Medical School as HT 140.

Prerequisite: Molecular Biology and Biochemistry.

Fall 2015

First Meeting: Tuesday, September 15, 2015

Final Meeting: Tuesday, December 8, 2015

Location: TMEC 104 or MIT E25-119

Course Head: George Daley, george.daley@childrens.harvard.edu

Teaching Assistant: Emma Fink, emma_fink@hms.harvard.edu

BCMP 230. Principles and Practice of Drug Development

Lee L. Rubin and Stan Neil Finkelstein

4 units

(Fall Term). Th., 3–6.

Critical assessment of the major issues and stages of developing a pharmaceutical or biopharmaceutical. Drug discovery, preclinical development, clinical investigation, manufacturing and regulatory issues considered for small and large molecules. Economic considerations of the drug development process.

Note: Classes held at MIT. SCRB 230 is also offered as BCMP 230. Students may not take both for credit.

Fall 2015

First Meeting: Thursday, September 10, 2015

Final Meeting: Thursday, December 3, 2015

Location: MIT Bldg., 56, Room 114

Course Head: Stan Finkelstein, finkelst@hcp.med.harvard.edu

Cell Biology

Cell Biology 226. Concepts in Development, Self-Renewal, and Repair

Iain A. Drummond and Amar Sahay

4 units. Enrollment limited to 12.

(Fall term). F., 2–5.

Explores developmental mechanisms through the life cycle, contrasting pluripotency and cell fate restriction in embryos and adult tissues. In depth analysis of in vivo approaches, with emphasis on adult stem cells, tissue repair and self-renewal.

Prerequisite: Upper division cell biology or equivalent. Note: Offered jointly with the Medical School as CB 721.0. For more information visit: http://www2.massgeneral.org/bbs/CB226/cb_226.htm

Fall 2015

First Meeting: Friday, September 4, 2015

Final Meeting: Friday, December 5, 2015

Location: TMEC L-007, HMS, 260 Longwood Ave.,

Course Heads: Iain A. Drummond, idrummy@partners.org OR idrummy@mgm.harvard.edu

Genetics

Genetics 201. Principles of Genetics

Fred Winston, Thomas G. Bernhardt, Matthew Harris, Maxwell G. Heiman, Mitzi I. Kuroda, and Steven A. McCarroll

4 units

(Fall term). M., W., F., 9-10:20.

An in-depth survey of genetics, beginning with basic principles and extending to modern approaches and special topics. We will draw on examples from various systems, including yeast, *Drosophila*, *C. elegans*, mouse, human and bacteria.

Note: Intended for first-year graduate students. Offered jointly with the Medical School as GN 701.0.

Fall 2015

First Meeting: September 2, 2015

Final Meeting: December 7, 2015

Final Exam: Due on December 10, 2015

Location: Cannon Room, Building C

Course Heads: Fred Winston (Winston@genetics.med.harvard.edu) and Max Heiman (heiman@genetics.med.harvard.edu)

Curriculum Fellow: Emily Gleason, Emily_gleason@hms.harvard.edu, 617-432-7203

Human Biology and Translational Medicine

HBTM 201. Tumor Pathophysiology and Transport Phenomena - A Systems Biology Approach

Rakesh Jain

4 units

(Fall term). M. 5-7 p.m.

Tumor pathophysiology plays a central role in the growth, metastasis, detection, and treatment of solid tumors. Principles of transport phenomena are applied to develop a quantitative understanding of tumor biology and treatment.

Note: Given in alternate years. Offered jointly with the Medical School as PA 712.0. Classes held at MIT.

Fall 2015

First Meeting: Monday, September 14, 2015

Final Meeting: Monday, December 7, 2015

Location: MIT building E25-117

Course Head: Rakesh K. Jain, jain@steele.mgh.harvard.edu

Teaching Assistant: Ivy Chen, ivychen@fas.harvard.edu

HBTM 235. Principles of Human Disease: Physiology and Pathology
Constance L. Cepko and members of the Medical School Faculty

4 units

(Fall term). M., W., F., 9–10:30.

This course covers the normal physiology and pathophysiology of selected organs, through lectures, readings, tutorials based on clinical cases, and patient presentations. Human biology is emphasized, with some examples also drawn from model organisms.

Prerequisite: Knowledge of introductory biochemistry, molecular biology, and cell biology required (MCB52 and MCB54 or equivalent and one year of organic chemistry for undergraduates).

Course enrollment will be limited, with priority given to graduate students and a maximum of 10 undergraduates (priority given to seniors).

Fall 2015

First Meeting: Wednesday, September 2, 2015

Final Meeting: Wednesday, December 2, 2015

First Meeting Location: NRB 350

Course Head: Connie Cepko, cepko@genetics.med.harvard.edu

Teaching Assistants: Sam Linder & Katie Richardson (slinder@fas.harvard.edu; kricheson@fas.harvard.edu)

Immunology

Immunology 201. Principles of Immunology

Thorsten Mempel, Michael Carroll, Ulrich H. Von Andrian, and members of the Program in Immunology

4 units. Enrollment limited to 50.

(Fall term). Tu., Th., 1:30-3, with section Tu., Th., 3-4. EXAM GROUP: 15, 16

Comprehensive core course in immunology. Topics include a broad but intensive examination of the cells and molecules of the immune system. Special attention given to the experimental approaches that led to general principles of immunology.

Note: Intended for students who have had prior exposure to immunology on the undergraduate level. In the absence of such exposure, students must obtain the permission of the Course Director. Offered jointly with the Medical School as IM 702.0.

Prerequisite: A background in genetics and biochemistry strongly recommended.

Fall 2015

First Meeting: **Wednesday, September 2, 2015 at 2:00 PM (*all subsequent courses will be held on a Tuesday/Thursday schedule*)

Final Meeting: **Monday, December 21, 2015

Location: Modell Immunology Center, Fred S. Rosen Lecture Hall, Room 100A

Course Heads: Thorsten Mempel, tmempel@mgh.harvard.edu; Ulrich H. Von Andrian, uva@hms.harvard.edu

Immunology 301. Immunology Seminar
Michael C. Carroll and William Nicholas Haining

4 units. Enrollment limited to 20.

(Fall term). W. 12:15-1:15 (lunch) and 3:30-5 (discussion).

Gives students exposure to research topics in Immunology. Students prepare for the weekly seminar through readings, discussions, and preparing brief write-ups. These discussions are facilitated by members of the Committee on Immunology.

Note: Required for, and limited to, first-year Immunology graduate students.

Fall 2015

First Meeting: August 26, 2015 at 2:30 PM (Introductory session during Orientation)

Final Meeting: Monday, December 21, 2015

First Meeting Location: Modell Immunology Center, 2nd floor conference room, Room 258

Course Head: Michael Carroll, michael.carroll@childrens.harvard.edu

Medical Sciences

Medical Sciences 250ab. Human Functional Anatomy

Lee Gehrke

8 units. Enrollment limited to 52.

(Fall term). Lectures, M., W., F., 1:30-2:30; laboratory, M., W., F., 2:30-6.

Lectures, detailed laboratory dissections, and prosections provide a thorough exploration of the gross structure and function of the human body. Fundamental principles of embryology and bioengineering promote analytical approaches to understanding the body's design.

Note: Open to qualified graduate students with permission of the course director. The course has a minimum enrollment of 30. This course requires rental of a locker for two hundred and ten dollars. There will also be an additional fee for microscope rental. Offered jointly with the Medical School as HT010.

Fall 2015

First Meeting: Wednesday, September 9, 2015

Final Meeting: Monday, December 14, 2015 (final exam)

Location: Goldenson 122

Course Head: Lee Gehrke, lee_gehrke@hms.harvard.edu, (617) 253-7608

Microbiology and Immunobiology

Microbiology 205. Mechanisms of Microbial Pathogenesis

Clyde S. Crumpacker II and members of the Department

4 units. Enrollment limited to 40.

(Fall term). Tu., Th., 8:30-12:30.

The mechanisms of bacterial, mycoplasmal, fungal, and viral pathogenesis are covered. Topics are selected for intrinsic interest and cover the spectrum of pathophysiologic mechanisms of the infectious process. Emphasis on pathogenesis at the molecular level.

Note: Offered jointly with the Medical School as HT 040. Limited to 40. Please note that there will be an additional fee for microscope rental.

Prerequisite: A background course in molecular biology is strongly encouraged.

Fall 2015

First Meeting: Tuesday, September 8, 2015

Final Meeting: Thursday, December 10, 2015

Final Exam: Thursday, December 16, 2015

Location: TMEC 250

Course Head: Clyde S. Crumpacker, ccrumpac@bidmc.harvard.edu

Microbiology 214. Mechanisms of Bacterial Pathogenesis and Host Immune Response

Marcia Goldberg, Michael Starnbach, Jonathan Kagan, and Darren Higgins

4 units

(Fall term). Tu., Th., 10–12.

This course focuses on molecular mechanisms of bacterial pathogenesis and the host response to infection. The class consists of lectures and group discussions emphasizing methods, results, and interpretations of classic and contemporary literature. The course is designed to complement Microbiology 201.

Note: Designed for graduate students in first year or beyond, however undergraduates with specific interest in the field may audit.

Fall 2015

First Meeting: Thursday, September 3, 2015

Final Meeting: Thursday, December 10, 2015

Location: NRB 1031

Course Head: Marcia Goldberg, marcia.goldberg@mgh.harvard.edu

Curriculum Fellow: Bradley Coleman, bradley_coleman@med.harvard.edu

(617)432-1871

Neurobiology

Neurobiology 200. Neurobiology

John A. Assad, Matthew P. Frosch, Jeffrey R. Holt, Rosalind A. Segal, and Ziv William

4 units. Enrollment limited to 50.

(Fall term). M., W., 8:30-12; F., 8:30-10:30.

This is a comprehensive course in Neuroscience. Basic principles of organization and function of the nervous system will be discussed with frequent reference to pathophysiology of neurological and psychiatric disorders. Combining pathophysiology with basic neuroscience should provide physician/scientists and Ph.D. candidates with a dynamic picture of the rapidly evolving field of neuroscience and the experimental process from which the picture is derived, and all students should emerge with a greater awareness both of the applications of their work in alleviating disease, and of the ways that disease can provide insight into basic scientific questions. The course will span modern neuroscience from molecular neurobiology to perception and cognition, and will include the following major topics: Anatomy and Development of the Brain; Cell Biology of Neurons and Glia; Ion Channels and Electrical Signaling; Synaptic Transmission, Integration, and Chemical Systems of the Brain; Sensory Systems, from Transduction to Perception; Motor Systems; and Higher Brain Function (Memory, Language, Affective Disorders).

Note: Offered jointly with Harvard Medical School as HST 130. Follows the HMS calendar. Nine hours of lecture or lab/conference weekly.

Prerequisite: Introductory cell and molecular biology course with permission of instructor.

Fall 2015

First Meeting: Wednesday, September 9, 2015

Final Meeting: Friday, December 18, 2015 (final exam)

Location: TMEC 227

Course Heads: John Assad, jassad@hms.harvard.edu, (617) 432-2804 and Matthew Frosch, mfrosch@partners.org, (617) 726-5156

Neurobiology 220. Cellular Neurophysiology

Bruce P. Bean, Wade G. Regehr, Bernardo L. Sabatini, and Gary I. Yellen

4 units

(Fall term). Tu., Th., 9–12.

Introduction to the physiology of neurons, focusing on using electrophysiology and imaging to study function of ion channels, generation of action potentials, and physiology of synaptic transmission. Includes problem sets and reading of original papers.

Note: Offered jointly with the Medical School as NB 714.0.

Prerequisite: Introductory neurobiology.

Fall 2015

First Meeting: Tuesday, September 8, 2015

Final Meeting: Thursday, December 17, 2015

Location: Goldenson 122

Course Head: Bruce P. Bean, bruce_bean@hms.harvard.edu

Neurobiology 230. Visual Recognition: Computational and biophysical perspective
Gabriel Kreiman

4 units

(Fall term). M., 3:30–5:30.

Examines how neuronal circuits represent information and how those circuits are implemented in artificial intelligence algorithms. Topics: architecture of visual cortex, neurophysiology, visual consciousness, computational neuroscience, models of pattern recognition and computer vision.

Prerequisite: Life Sciences 1a (or Life and Physical Sciences A) and Life Sciences 1b (or equivalent).

Recommended: Math (Maa/Mab, Math 1A,1B, Math 19 a or equivalent). Physical Sciences 1. MCB 80.

Fall 2015

First Meeting: Monday, September 7, 2015

Final Meeting: Monday, December 14 2015

Location: Biolabs 1075, HU, Cambridge

Course Head: Gabriel Kreiman, gabriel.kreiman@childrens.harvard.edu, (617) 919-2530

Course Site:

http://klab.tch.harvard.edu/academia/classes/hms_neuro300_vision/hms_neuro300_vision.html

Speech and Hearing Bioscience and Technology

SHBT 200. Acoustics of Speech and Hearing

John J. Rosowski, Satra Ghosh and Christopher A. Shera

4 units. Enrollment limited to 20.

(Fall term). Lectures, Tu., Th., 1–2:30; recitations, W., 12-1.

Discusses limitations that the speech production and hearing systems impose on the sounds we produce and sense. Focuses on acoustic cues used in sound localization, speech production mechanisms, the mechanics of sound reception and perception.

Note: This course is taught in consort with 6.551J/HST.714J at the Massachusetts Institute of Technology. Classes will be held at MIT. Limited to 20. Must have a minimum of 5 students

Prerequisite: Mathematical methods in science (Applied Mathematics 21a or Mathematics 21a) or equivalent. Rigid body mechanics (Physics 11A), or electrical circuits (Engineering Science 154) or permission of the instructor

Fall 2015

First Meeting: Wednesday, September 9, 2015

Final Meeting: Friday, December 18, 2015

Location: MIT 36-737

Course Head: John Rosowski, john_rosowski@meei.harvard.edu

Course Website: <http://web.mit.edu/6.551j/www/>

SHBT 201. Biology of the Inner Ear
M. Charles Liberman and Stephane Maison

4 units. Enrollment limited to 12.

(Fall term). Tu., Th., 9–10:30, F. laboratory hours to be arranged.

Normal biology, biophysics, physiology and morphology of the inner ear, its sensory innervation and efferent control systems, and the mechanisms underlying sensorineural hearing loss and balance disorders. Material is presented through lectures, laboratory exercises and discussions of the primary literature.

Prerequisite: Introductory neurobiology recommended. Limited to 12.

Fall 2015

First Meeting: September 3, 2015, 9:00 am

Final Meeting: December 3, 2015, 9:00 am

Location: Massachusetts Eye and Ear Infirmary, Room 432

Course Head: Charles Liberman, charles_liberman@meei.harvard.edu

SHBT 206. Molecular Biology of the Auditory System

Albert Edge

4 units

(Fall term). Tu., 4–6.

Advances in molecular biology of hearing. Topics: Transcriptional and post-translational regulation of gene expression; cell fate determination during inner ear development; inner ear stem cells and regenerative capacity in various species; use of genomics in investigations of the inner ear; critical genes for generating functional hair cells.

Note: Given in alternate years.

Prerequisite: Introductory courses in neurobiology and molecular biology are recommended.

Fall 2015

First Meeting: Tuesday, September 8, 2015

Final Meeting: Tuesday, December 1, 2015

Location: Please contact instructor for course location.

Course Head: Albert Edge, albert_edge@meei.harvard.edu

Virology

Virology 200. Introduction to Virology

Max L. Nibert, David M. Knipe and Priscilla L. Yang

4 units. Enrollment limited to 20.

(Fall term). M., 9:00-10:30, W., 8:45-10:30

Introduction to virology. The lecture component reviews the basic principles of virology and introduces the major groups of human viruses. Weekly discussion groups critically analyze selected papers from the literature.

Note: There will be a final project consisting of a proposal based on laboratory rotations (for Virology, BBS, or Immunology Program students) or a final paper based on a topic from the literature. Offered jointly with the Medical School as MG 705.0. Limited to 20.

Fall 2015

First Meeting: September 2, 2015

Final Meeting: December 9, 2015

First Meeting Location: NRB-833

Location: Monday sessions will be held in NRB-935. Wednesday sessions will be held in NRB-833.

Course Head: Max Nibert, max_nibert@hms.harvard.edu

Virology 202. Proposal Writing

Benjamin Gewurz, Galit Alter, James DeCaprio and Frederick C. Wang

4 units. Enrollment limited to 20.

(Fall term). W., 1:45–5:00.

Students will write, present, and evaluate research proposals in the areas of virus replication, viral pathogenesis and treatment and prevention of viral infections.

Note: Offered jointly with the Medical School as MG 724.0.

Prerequisite: General background in biochemistry and virology.

Fall 2015

First Meeting: September 2, 9,16,23,30, October 7, 14, 21, 28, November 4, 11

Final Meeting: November 11, 2015

First Meeting Location: September 2, TMEC 212

Location: Course Head: Benjamin Gewurz, BGEWURZ@PARTNERS.ORG

Other courses of interest

Systems Biology 200. Dynamic and Stochastic Processes in Cells

Catalog Number: 8701

Johan M. Paulsson (Medical School) and Jeremy M. Gunawardena (Medical School)

Half course (fall term). Tu., Th., 10-11:30, and a weekly section to be arranged. EXAM GROUP: 12, 13

Rigorous introduction to (i) dynamical systems theory as a tool to understand molecular and cellular biology (ii) stochastic processes in single cells, using tools from statistical physics and information theory.

Note: Students planning to take both quarter courses (SB303 and 304) must enroll in this as a half course on their study card as SysBio200 for now and in the future. Students who take one half of this quarter can NOT ever take the other half for credit.

Prerequisite: College-level calculus.

Fall 2015

First Meeting: September 3, 2015

Final Meeting: December 3, 2015

Location: Cambridge, NW 343

Course Head: Jeremy Gunawardena, jeremy@hms.harvard.edu; Johan Paulsson, johan_paulsson@hms.harvard.edu

Systems Biology 204. Biomolecular Engineering and Synthetic Biology

Catalog Number: 71179

Peng Yin (Medical School), William Shih (Medical School), Pamela A. Silver (Medical School), and George M. Church (Medical School)

Half course (fall term). M., W., 2-4. EXAM GROUP: 7, 8

A course focusing on the rational design, construction, and applications of nucleic acid- and protein-based synthetic molecular and cellular machinery and systems. Students are mentored to produce substantial term projects.

Note: See <http://sb204.net> for details.

Fall 2015

First Meeting: Wednesday, September 2, 2015

Last Meeting: Monday, November 30, 2015

Location: Room 521 at Wyss Institute (3 Blackfan Circle, Boston)

Course Head: Peng Yin, peng_yin@hms.harvard.edu

BPH 310QC Molecular Mechanisms of Aging

Fall 2015-2016

Meeting Time: Monday, Friday 1:30pm - 3:20pm (September 4 – mid-October)

Exam Group: FAS08_F

Course Description: We will explore molecular mechanisms underlying aging and aging-related disease. Topics will include nutrient signaling and energy metabolism, genome stability and proteostasis, interventional approaches to extended longevity, and theories of aging including the free radical theory. Recent and classic literature will be critically discussed.

Note Offered jointly with the School of Public Health as GCD 212.

Location: HSPH2-102.