Division of Medical Sciences
Ph.D. Programs at Harvard Medical School

First Meeting of Half Courses
Spring Term 2017-2018

Classes Start: Monday, January 22, 2018

Online Check-In (formerly known as registration):
Wednesday, January 17, 2018 – Monday, January 26, 2018
Please visit the Harvard University Knowledge Center website for more information

Deadlines and Holidays: Please visit the GSAS Calendar to view deadlines and holidays for the 17-18 academic year

For information: Call 617-432-4134 or email dms_courses@hms.harvard.edu
BCMP 234 Cellular Metabolism and Human Disease
Curriculum Fellow: Christopher Burtner

BCMP 236 Modern Drug Discovery: From Principles to Patients
Timothy Mitchison, Catherine Dubreuil and Nathanael Gray

BCMP 250 Biophysical and Biochemical Mechanism of Protein Function
Enrollment: Limited to 40
Andrew Kruse, Stephen Blacklow, Michael Eck and Eric Fischer
Curriculum Fellow: Madhvi Venkatesh

Cell Biology 201 Principles of Cell Biology
Enrollment: Limited to 40
Curriculum Fellow: Seth Johnson

Cell Biology 207 Vertebrate Developmental and Regenerative Biology
Enrollment: Limited to 18.
Andrew Lassar, John Flanagan, Jordan Kreidberg, Sean Megason, Jessica Whited, Olivier Pourquié, Jayaraj (Jay) Rajagopal, and Yingzi Yang

Cell Biology 211
Enrollment: Limited to 36
Peter Sicinski, Jarrod Marto and Marc Vidal
Curriculum Fellow: Ryan Lee

Genetic 202 Human Genetics
Enrollment: Limited to 10
Matthew Warman
Curriculum Fellow: Rachel Wright

Genetics 216 Advanced Topics in Gene Expression
Enrollment: Limited to 16
Fred Winston, Robert Kingston, and Stephen Buratowski

Genetics 228 Genetics in Medicine - From Bench to Bedside
Enrollment: Limited to 35
David Sweetser

HBTM 200 Principles and Practice of Human Pathology
Scott Lovitch

Immunology 202 Immune and Inflammatory Diseases
Filip Swirski and Mikael Pittet
Immunology 204 Critical Readings for Immunology
Duane Wesemann

Immunology 301 Immunology Seminar
*Enrollment: Limited to 20.*
Galit Alter and Shiv Pillai

Microbiology 201 Molecular Biology of the Bacterial Cell
David Rudner, Thomas Bernhardt and Simon Dove
Curriculum Fellow: Deepali Ravel

Microbiology 210 Microbial Sciences: Chemistry, Ecology, and Evolution
*Enrollment: Limited to 15*
Michael Gilmore
Teaching Assistants: Braden Tierney and Elizabeth Fiore

Microbiology 213 Social Issues in Biology
*Enrollment: Limited to 18.*
Jonathan Beckwith and Thompson Morgan

Neurobiology 209 Neurobiology of Disease
*Enrollment: Limited to 25*
Edward Kravitz and Patricia Musolino

Neurobiology 215B The Discipline of Neuroscience
Lisa Goodrich, John Assad, Gary Yellen, Bruce Bean, Thomas Schwarz, Sandeep Robert Datta, Rosalind Segal, Pascal Kaeser, Wade Regehr, Michael Do, David Corey, Joshua Kaplan, Bernardo Sabatini, Rachel Wilson, Richard Born, Jan Drugowitsch, Christopher Harvey and Mark Andermann
Curriculum Fellow: Taralyn Tan

SHBT 202 Clinical Aspects of Speech and Hearing
*Enrollment: Limited to 15*
Konstantina Stankovic
Teaching Assistant: Jessica Sagers

SHBT 205 Neural Coding and Perception of Sound
*Enrollment: Limited to 20*
Joshua McDermott, Daniel Polley, Bertrand Delgutte, M. Christian Brown

Virology 201 Virology
*Enrollment: Limited to 20*
Ben Gewurz and James Cunningham
BCMP 234 Cellular Metabolism and Human Disease

4 units

MWF 9:00AM – 10:20AM

Cellular and organismal metabolism, with focus on interrelationships between key metabolic pathways and human disease states. Genetic and acquired metabolic diseases and functional consequences interactive lectures and critical reading conferences are integrated with clinical encounters;

Course notes: Enrollment may be limited. For undergraduates only: knowledge of introductory biochemistry, genetics, and cell biology required (MCB 63 or MCB 60 and 64 or equivalent); one year of organic chemistry.

Spring 2018
First Meeting: Monday, January 22, 2018
Final Meeting: Wednesday, May 2, 2018
Location: Cannon Room, Building C
Course Head: Thomas Michel, Thomas_Michel@hms.harvard.edu
Curriculum Fellow: Christopher Burtner, Christopher_Burtner@hms.harvard.edu
BCMP 236 Modern Drug Discovery: From Principles to Patients
Timothy Mitchison, Catherine Dubreuil and Nathanael Gray

4 Units

Tue and Th 3:30-5:00

This course will familiarize students with central concepts in drug action and therapeutics: specifically we will cover concepts surrounding Pharmacokinetics (PK) and the intersection of PK and medicinal chemistry in both lectures and cases based discussions. These concepts are central to modern drug development and evaluation. In the course we will cover drug-target interactions, Pharmacokinetics and Pharmacodynamics. This course will have a focus on modern approaches to therapeutic development for small molecules, protein based therapeutics, nucleic acid based drugs and antibacterial compounds as well new frontiers in therapeutic discovery.

Course Notes: This course is the combination of the BCMP 309qc and 307qc quarter courses, offered as half course. Students who plan to take the two quarters must sign up under BCMP 236.

Spring 2018
First Meeting: TBD
Final Meeting: TBD
Location: TBD
Course Heads: Timothy Mitchison, timothy_mitchison@hms.harvard.edu and Catherine Dubreuil catherine_dubreuil@hms.harvard.edu
Course Instructors: Nathanael Gray, nathanael_gray@dfci.harvard.edu
BCMP 250 Biophysical and Biochemical Mechanism of Protein Function
Andrew Kruse, Stephen Blacklow, Michael Eck and Eric Fischer

4 units

Enrollment Limit: Limited to 40, Instructor Consent Required

Tue and Th 10:30am – 12:00pm

Biophysical and Biochemical Mechanisms of Protein Function focuses on the molecular mechanisms that underlie essential biochemical processes such as signal transduction. Major topics include biochemical thermodynamics and conformational equilibria, protein structure and folding, receptor pharmacology, allostery, and enzymatic mechanisms of signaling. The course includes both content lectures and research frontiers seminars focused on current research in biochemistry with an emphasis on signal transduction in therapeutically relevant pathways.

Course Note: A foundational biochemistry course

Spring 2018
First Meeting: Tuesday, January 23, 2018
Final Meeting: Tuesday, April 24, 2018
Location: Modell 100
Course Heads: Andrew Kruse, andrew_kruse@hms.harvard.edu
Course Instructors: Andrew Kruse, Andrew_kruse@hms.harvard.edu, Stephen Blacklow, stephen_blacklow@hms.harvard.edu, Michael Eck, eck@red.dfci.harvard.edu and Eric Fischer, eric_fischer@hms.harvard.edu.
Curriculum Fellow: Madhvi Venkatesh
Cell Biology

**Cell Biology 201 Principles of Cell Biology**

Units 4

Lectures: Mon, Wed, and Fri 10:30-12:00

Discussion Sections: Fri at 10:30-12:00

CB201 is a graduate level course intended to teach critical concepts in cell biology, and expose students to current and quantitative approaches in cell biology research. Topics include the molecular basis of cellular dynamics, subcellular compartmentalization, protein trafficking, chromosome biology and epigenetics, regulated ubiquitin-proteasome pathways, cell cycle regulation, cytoskeleton and motor dynamics, signal transduction, cell-cell interactions, and programmed cell death.

Methodological focus on current approaches in cell biology including quantitative tools. Emphasis on experimental design. Offered jointly with the Medical School as CB 713.0

Basic knowledge in biochemistry, genetics and cell biology.

**Spring 2018**
**First Meeting:** Monday January 22, 2018
**Final Meeting:** Friday April 27, 2018
**Location:** Cannon room, Building C 114
**Course Head:** Danesh Moazed, Danesh_Moazed@hms.harvard.edu
**Curriculum Fellow:** Seth Johnson
Cell Biology 207 Vertebrate Developmental and Regenerative Biology
Andrew Lassar, John G. Flanagan, Jordan Kreidberg, Sean Megason, Olivier Pourquié, Jessica Whited and Yingzi Yang

4 Units

Enrollment: Limited to 18, instructor consent required.

Lecture: Mon and Wed 2:00-4:00

Analyzes the developmental programs of frog, chick, zebrafish, and mouse embryos, emphasizing experimental strategies for understanding the responsible molecular mechanisms that pattern the vertebrate embryo. Signaling pathways controlling morphogenesis, organogenesis, stem cells and regeneration will be discussed in detail.

Course Notes: Offered jointly with the Medical School as CB 710.0. Includes lectures and conference sessions in which original literature is discussed in depth. Short research proposals are required in lieu of exams.

Spring 2018
First Meeting: Monday, January 22, 2018
Final Meeting: Wednesday, May 9, 2018
Location: TMEC 448
Course Head: Andrew Lassar, andrew_lassar@hms.harvard.edu and John Flanagan flanagan@hms.harvard.edu
Cell Biology 211 Molecular and Systems Level Cancer Cell Biology
Peter Sicinski, Jarrod Marto, Marc Vidal, Kornelia Polyak, Pere Puigserver, Myles Brown, Geoffrey Shapiro, Nathanael Gray, and Kai Wucherpfennig

Units 4

Enrollment: Limited to 24

Mon and Wed 1:00-2:30

Examines the molecular basis of cancer formation including topics such as cancer epigenetic, tumor heterogeneity, systems biology proteomic approaches to study cancer, immune therapies in cancer, and therapeutic development.

Course Notes: Discussion sections on Feb 5, Feb 14, Feb 28, Mar 12, Mar 21, Apr 2, Apr 11, Apr 23

General knowledge of biochemistry, molecular genetics, and cell biology.

Spring Session 2018
First Meeting: Wednesday, January 24, 2018
Final Meeting: Monday, April 23, 2018
Location: TMEC 447
Head Instructor: Peter Sicinski, Peter_Sicinski@dfci.harvard.edu
Curriculum Fellow: Ryan Lee, Ryan_Lee@hms.harvard.edu
Genetics

Genetic 202 Human Genetics
Matthew Warman

4 Units

Enrollment: Limited to 10. Instructor consent required

Mon – Friday 2:00 – 5:00pm

This course examines genetic principles and experimental approaches for addressing fundamental questions about human variation, history, health, and disease. Each session is comprised of a lecture and a class discussion. Each lecture introduces a new topic while the class discussion addresses the previous week’s lecture topic and solidifies knowledge about that topic through the critical reading and analysis of research and review articles. Class discussions utilize different types of source materials that are recommended by each lecturer. These materials will typically include a review article and a current article in that field. Additionally, problem sets will give students the opportunity to apply the concepts from the lecture and class discussion and get experience using tools critical to the study of human genetics. The knowledge and practical skills gained from this course will be applicable for many other lines of scientific inquiry.

Prerequisite: Genetics 201 (or permission of the instructor) and basic knowledge of probability and statistics. Familiarity with bioinformatics and computational tools will be useful, but tutorial assistance will be provided where necessary.

Spring 2018
First Meeting: January 29, 2018
Final Meeting: February 23, 2018
Location: TMEC 227
Course Instructor: Matthew Warman
Curriculum Fellow: Rachel Wright
Genetics 216 Advanced Topics in Gene Expression
Fred Winston, Robert Kingston, and Stephen Buratowski

4 Units

Enrollment: Limited to 16, instructor consent required.

Tue 2:00-5:00

This course covers different topics in gene regulation, covering genetic, genomic, biochemical, and molecular approaches. A small number of topics are discussed in depth, using the primary literature. Topics range from prokaryotic transcription to eukaryotic development.

Course Notes: Offered jointly with the Medical School as GN 703.0. BCMP 310qe, Eukaryotic Gene Regulation, has merged into Genetics 216.

Prerequisite: Genetics 201 and BCMP 200 or equivalent. All students taking Genetics 216 should read and be prepared to discuss the papers for the first meeting on January 23. The readings can be downloaded from the course web site.

Spring 2018
First Meeting: Tuesday, January 23, 2018
Final Meeting: Tuesday, May 8, 2018
Location: TMEC 128
Course Head: Fred Winston, winston@genetics.med.harvard.edu
Course Instructors: Robert Kingston, kingston@molbio.mgh.harvard.edu, and Stephen Buratowski, steve_buratowski@hms.harvard.edu
Genetics 228 Genetics in Medicine - From Bench to Bedside

David Sweetser

4 Units

Enrollment: Limited to 35, instructor consent required if you haven’t taken Genetics 201 or equivalent

Fri 2:00-5:00

Focus on translational medicine: the application of basic genetic discoveries to human disease. Each three-hour class will focus on a specific genetic disorder and the approaches currently used to speed the transfer of knowledge from the laboratory to the clinic. Each class will include a clinical discussion, a patient presentation if appropriate, followed by lectures, a detailed discussion of recent laboratory findings and a student led journal club. Lecturers will highlight current molecular, technological, bioinformatics and statistical approaches that are being used to advance the study of human disease. There is no exam. Students will present one paper per session in a journal club style. Attendance and active participation for the duration of all class meetings is required. If you are unable to attend class, or cannot be present for the entire session you are expected to contact the course instructor. Two incomplete or missed sessions will result in a failing grade.

Course Notes: Course will be held at MGH (transportation provided to MGH). Offered jointly with the Medical School as GN 711.0. For more information visit http://www2.massgeneral.org/bbs/gen228/gen228.htm

Recommended Prep: Genetics 201 or equivalent.

Spring 2018
First Meeting Date: Friday, January 26, 2018
Final Meeting Date: Friday, April 20, 2018
Location: Simches Research Center, MGH 3rd floor, Room 3120 (Transportation will be provided from Vanderbilt Hall at 1:30pm)
Course Head: David Sweetser, DSWEETSER@mgh.harvard.edu
HBTM 200: Principles and Practice of Human Pathology
Scott Lovitch

4 Units

Tue 9:00-11:00 and Th 9:00-1:00

This course provides a comprehensive overview of human pathology with emphasis on mechanisms of disease and modern diagnostic technologies. Topics include (1) general mechanisms of disease (inflammation, infection, immune injury, host response to foreign materials, transplantation, genetic disorders and neoplasia), (2) pathology of major organ systems, and (3) review of diagnostic tools from invasive surgical pathology to non-invasive techniques such as diagnostic imaging and molecular pathology. The objectives of this course are achieved through a set of integrated lectures and laboratories, as well as a student-driven term project leading to a formal presentation on a medical, socioeconomic, or technological issue in human pathology.

Course Notes: Enrollment may be limited. Jointly offered with HMS as HT035.0.

Prerequisites: General biology.

Spring 2018
First Meeting: Tuesday, January 30, 2018
Final Meeting: Thursday, May 1, 2018
Location: TMEC 250
Course Head: Scott Lovitch, slovitch@partners.org
Course Website: https://canvas.harvard.edu/courses/8871
**Immunology**

**Immunology 202 Immune and Inflammatory Diseases**  
*Filip Swirski and Mikael Pittet*

4 Units

Tue and Th 1:30-4:00 (Lecture: 1:30-2:30 Break: 2:30-2:45 Discussion: 2:45-4:00)

IMM202 builds on IMM201 and explores fundamental principles of immunology in the context of immune and inflammatory diseases. Through a series of lectures and discussion, students will survey a broad range of diseases in which the immune system is essential. Topics will include not only diseases that mobilize classical immunity but also conditions to which we now know the immune systems contributes. Students will use oral and written exercises to learn how to evaluate and synthesize major concepts and tools germane to immunology’s relationship to bioscience.

**Course Notes:** Offered jointly with the Medical School as IM 712.0.

**Prerequisite:** Immunology 201 or its equivalent.

**Spring 2018**  
**First Meeting:** Tuesday, January 24, 2018  
**Final Meeting:** Thursday, May 4, 2018  
**Location:** Jeffrey Modell Immunology Center, Rooms 100A  
**Course Co-Heads:** Filip Swirski, fsuirski@mgh.harvard.edu, and Mikael Pittet, mpittet@mgh.harvard.edu
**Immunology 204 Critical Readings for Immunology**

*Duane Wesemann*

4 Units

Th 10:00-1:00

Original research articles from fields including immunology, biochemistry, genetics, and cell and developmental biology will be critically analyzed in an intensive small group format. Grading will be based on class participation and oral presentations.

**Course Notes:** Required for first-year immunology students, open to second-year immunology students. No auditors. Offered jointly with the Medical School as IM 703.0.

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**Spring 2018**

**First Meeting:** Thursday, January 25, 2018

**Final Meeting:** Thursday, May 3, 2018

**Location:** Jeffrey Modell Immunology Center, Rooms 100A

**Course Head:** Duane Wesemann, dwesemann@bwh.harvard.edu

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**Immunology 301 Immunology Seminar**

*Galit Alter and Shiv Pillai*

4 Units

Enrollment: Limited to 20, instructor consent required.

Wed 3:30-5:00

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.

**Spring 2018**

**First Meeting:** Wednesday, January 24, 2018

**Final Meeting:** Wednesday, May 2, 2018

**Location:** Modell Center, Room 100A

**Course Head:** Shiv Pillai, pillai@helix.mgh.harvard.edu
Microbiology

Microbiology 201 Molecular Biology of the Bacterial Cell
David Rudner, Thomas Bernhardt and Simon Dove

4 Units

Tue and Th 10:00-12:00

This course is devoted to bacterial structure, physiology, genetics, and regulatory mechanisms. The class consists of lectures and group discussions emphasizing methods, results, and interpretations of classic and contemporary literature.

Spring 2018
First Meeting: Tuesday, January 23, 2018
Final Meeting: Tuesday, April 24, 2018
Location: NRB 1031
Course Head: David Rudner, rudner@hms.harvard.edu, Thomas Bernhardt, thomas_bernhardt@hms.harvard.edu
Course Instructors: Simon Dove, simon.dove@childrens.harvard.edu
Curriculum Fellow: Deepali Ravel, Deepali_Ravel@hms.harvard.edu
Microbiology 210 Microbial Sciences: Chemistry, Ecology, and Evolution
Michael Gilmore

4 Units

Enrollment: Limited to 15

Fri 8:30-11:45 (Lecture 8:30-9:30; Discussion 9:45 – 11:45)

This is an interdisciplinary graduate-level and advanced undergraduate-level course in which students explore topics in molecular microbiology, microbial diversity, and microbially-mediated geochemistry in depth. This course will be taught by faculty from the Microbial Sciences Initiative. Topics include the origins of life, biogeochemical cycles, microbial diversity, and ecology.

Course Notes: Also offered as Organismic and Evolutionary Biology 290.

Prerequisite: For advanced undergraduates, Life Sciences 1a and 1b are required, or permission of instructor. MCB 52 is recommended.

Spring 2018
First Meeting: Friday, January 26, 2018
Final Meeting: Friday, April 20, 2018
Location: Harvard Natural History Museum 418
Course Head: Michael Gilmore, michael_gilmore@meei.harvard.edu
Course Instructors: Michael Gilmore
Teaching Assistants: Braden Tierney and Elizabeth Fiore, elizabeth_fiore@meei.harvard.edu
Microbiology 213 Social Issues in Biology
Jonathan Beckwith and Thompson Morgan

4 Units

Enrollment: Limited to 18, instructor consent required.

Th 2:00-5:00

This is an active learning, discussion-based course on topics including: human cognition, history and philosophy of science; science and religion; genetic issues (determinism, testing, enhancement, etc.); underepresented groups in science; science in wartime; scientists and social responsibility; and the communication of science. Students will experience a problem-based learning (PBL) approach that allows them to shape their own directions of inquiry and develop skills as investigators and educators. Students will have ample opportunities to practice professional skills foundational to collaboration, mentoring, and leadership with the intention that they are supported in moving from recognizing issues to taking action.

Course Notes: Offered jointly with the Medical School as MG 722.0. Alternates yearly between the Longwood and the Cambridge Campuses.

Prerequisite: Some background in genetics.

Spring 2018
First Meeting: Thursday, January 25, 2018
Final Meeting: Thursday, April 30, 2018
Location: NRB 833
Course Head: Jonathan Beckwith, jbeckwith@hms.harvard.edu
Neurobio 209 Neurobiology of Disease
Edward Kravitz and Patricia Musolino

Enrollment Limited to 25, instructor consent required

4 unit

M. 6:30 – 8:30PM; W. 7:30 – 9:30PM

Monday sessions involve patient presentations and “core” lectures describing clinical progression, pathology, and basic science underlying a major disease or disorder. Wednesdays, students present material from original literature sources, and there is general discussion.

Course Notes: Given in alternate years. Offered jointly with the Medical School as NB 713.0. For advanced undergraduate, graduate students, MD and MD/PhD students. Introductory neurobiology, biochemistry, and genetics/molecular biology recommended.

Spring 2018
First Meeting: January 22, 2018
Final Meeting: April 25, 2018
Location: Goldenson Building, Room 122
Course Head: Edward Kravitz, edward_kravitz@hms.harvard.edu and Patricia Musolino, pmusolino@partners.org
Neurobiology 215B. The Discipline of Neuroscience
Lisa Goodrich, John Assad, Gary Yellen, Bruce Bean, Thomas Schwarz, Sandeep Robert Datta, Rosalind Segal, Pascal Kaeser, Wade Regehr, Michael Do, David Corey, Joshua Kaplan, Bernardo Sabatini, Rachel Wilson, Richard Born, Jan Drugowitsch, Christopher Harvey and Mark Andermann

Instructor consent required

4 units

T., Th., 9:00AM – 11:50AM

This course will endow students with the broad conceptual fluency in the discipline of neuroscience required to relate genes to circuit function, metabolism to neurological disease, and cell biology to neural computations. Through a combination of lectures and in-class activities, students will learn to design, quantitatively analyze, and interpret experiments that address a variety of questions spanning molecular to systems neuroscience. During the first semester, students will think critically about the fundamental units of the nervous system within the context of cellular function, electrical conduction, and chemical signaling. The second half of the course builds upon this foundation to focus on broadly defined “networks of neural function” as related to coordinated neural activity, the concerted execution of genetic programs, and anatomically defined structural networks. The course culminates with students writing a grant proposal in the style of the NIH NRSA.

Course Note: Full year course (students may not enroll for the second semester unless they have completed the first semester; however, students could elect to take just the first semester.

Fall 2017

Meeting Dates: January 23, 2018 through April 26, 2018
First Meeting Location: WAB 236
Course Head: Lisa Goodrich, lisa_goodrich@hms.harvard.edu and John Assad, john_assad@hms.harvard.edu
Curriculum Fellow: Taralyn Tan, Taralyn_Tan@hms.harvard
SHBT 202 Clinical Aspects of Speech and Hearing
Konstantina Stankovic

4 Units

Enrollment: Limited to 15, instructor consent required

Mon and Wed 5:00 -7:00 pm

Clinical approach to speech and hearing disorders as practiced by physicians, audiologists, speech clinicians, rehabilitation specialists, and bioengineers. Includes observation of patient care in clinic and operating rooms, as well as lectures, discussion groups, and laboratory experience in audiological and vestibular testing.

Course Notes: Offered jointly with HST 724 at MIT. Classes to be held at Massachusetts Eye and Ear (MEE).

Recommended Prep: Anatomy of Speech and Hearing, Acoustics of Speech and Hearing or permission of the course director.

Spring 2018
First Meeting Date: Monday January 29, 2018
Final Meeting Date: Monday April 23, 2018
Location: Eaton-Peabody Laboratories, Massachusetts Eye and Ear
Course Head: Konstantina Stankovic, konstantina_stankovic@meei.harvard.edu
Teaching Assistant: Jessica Sagers, jsagers@g.harvard.edu
SHBT 205 Neural Coding and Perception of Sound
Joshua McDermott, Daniel Polley, Bertrand Delgutte and M. Christian Brown

4 Units

Enrollment: Limited to 20, instructor consent required.

Mon, Wed and Fri 9:30-11:30

Neural structures and mechanisms mediating the detection, localization and recognition of sounds. General principles are conveyed by theme discussions of auditory masking, sound localization, musical pitch, cochlear implants, cortical plasticity and auditory scene analysis.

Course Notes: Offered jointly with MIT HST.723J.

Prerequisite: Neurobiology 200 or permission of instructor

Spring 2018
First Meeting: Monday, January 23, 2018
Final Meeting: Wednesday, April 26, 2018
Location: Massachusetts Eye & Ear, 3rd floor Conference Room
Course Head: Joshua McDermott, jhm@mit.edu  Daniel Polley, daniel_polley@meei.harvard.edu
Course Instructors: Bertrand Delgutte, bertrand_delgutte@meei.harvard.edu, M. Christian Brown, chris_brown@meei.harvard.edu
Virology

**Virology 201 Virology**  
*Ben Gewurz and James Cunningham*

4 Units

Enrollment: Limited to 20

Mon and Wed 2:30-4:00pm

The course focuses on the following areas of virology: (i) epigenetic regulation, (ii) RNA virus replication mechanisms, (iii) innate responses to viral infection and (iv) inhibition of viral infection. The course will comprise lectures as well as reviewing literature that describes fundamental breakthroughs relevant to these areas. Within those areas, the class will read and discuss papers dealing with virus structure, replication, pathogenesis, evolution, emerging viruses, chronic infection, innate and adaptive immunity, anti-viral drugs/vaccines. Special emphasis will be placed on preparing students to critically evaluate the literature, formulate hypotheses and design experiments.

**Course Notes:** Course format will be lectures, literature-based critical reading and discussion. Prepare and defend a written research proposal. Offered jointly with the Medical School as MG 723.0.

**Prerequisite:** Virology 200, graduate standing and permission required.

**Spring 2018**  
**First Meeting:** Monday, January 22, 2018  
**Final Meeting:** Wednesday, May 9, 2018  
**Location:** TMEC 426  
**Course Head:** Ben Gewurz, bgewurz@partners.org  
**Course Instructor:** James Cunningham, jcunningham@rics.bwh.harvard.edu
COURSES NOT OFFERED THIS SPRING 2018

**BCMP 213 Behavioral Pharmacology**  
Jack Bergman and Brian D. Kangas

**Cell Bio 212 Biology of the Cancer Cell**  
Enrollment: Limited to 36  
David Frank and Nikhil Wagle  
Curriculum Fellow: Megan Mittelstadt

**Genetic 219 Inheritance and Weird Stuff**  
Chaoting Wu