

# **First Meeting of Courses**

## *Spring Semester*

### **2014**

**Spring Semester Online Registration**  
**January 22 – 27, 2014**

**See Website:**

<http://www.registrar.fas.harvard.edu/registration-enrollment-degrees/online-registration-enrollment>

**Study Card Days:**

January 27 and 28, 2014

9:30am – 4:30pm

**Final Day to turn in Study Cards in Cambridge:**

Friday, January 31, 2014

**Spring Term Begins on: Monday, January 27, 2014**

**Add Deadline: Monday, March 10, 2014**

**Drop Deadline: Tuesday, March, 25, 2014**

*Holiday:*

*President's Day, Monday, February 17, 2014*

*Details Available at:*

[http://www.hms.harvard.edu/dms/Current/DMS\\_Quarter\\_Courses.html](http://www.hms.harvard.edu/dms/Current/DMS_Quarter_Courses.html)



**Tostenson Medical Education Center (TMEC) 435**  
**Harvard Medical School**  
260 Longwood Avenue

For Information Call: 617-432-0162  
Email: [dms@hms.harvard.edu](mailto:dms@hms.harvard.edu)

## Spring 2014 First Meeting of Courses

### **BCMP 201. Biological Macromolecules: Structure, Function and Pathways**

Catalog Number: 5068

*Stephen C. Harrison (Medical School), Stephen C. Blacklow (Medical School), and Peter K. Sorger (Medical School)*

### **\*BCMP 213. Behavioral Pharmacology**

Catalog Number: 4782 Enrollment: Limited to 15.

*Jack Bergman (Medical School) and Brian D. Kangas (Medical School)*

### **BCMP 234. Cellular Metabolism and Human Disease**

Catalog Number: 9644 Enrollment: May be limited

*Thomas Michel (Medical School), Cheryl Vaughan (FAS/DCE), and members of the Department*

### **BCMP 236. Modern Drug discovery: from principles to patients**

Catalog Number: TBA, Enrollment: May be limited.

*Nathanael Gray (Medical School) and members of the Department*

### **Cell Biology 201. Molecular Biology of the Cell**

Catalog Number: 1044

*Marcia Haigis (Medical School)*

### **Cell Biology 207. Developmental Biology: Molecular Mechanisms of Vertebrate Development**

Catalog Number: 2044 Enrollment: Limited to 25.

*Andrew B. Lassar (Medical School), John G. Flanagan (Medical School), Wolfram Goessling (Medical School), Jordan A. Kreidberg (Medical School), Sean Megason (Medical School), Trista Elizabeth North (Medical School), Ramesh Shivdasani (Medical School), Jessica Whited (Medical School), and Malcolm Whitman (Dental School).*

### **Cell Biology 211 (formerly Cell Biology 211a). Molecular and Systems Level Cancer Cell Biology**

Catalog Number: 5771

*Peter Sicinski (Medical School), Jarrod Marto (Medical School), and Marc Vidal (Medical School)*

### **Genetics 202. Human Genetics**

Catalog Number: 8064 Enrollment: Minimum of 8 and maximum of 30 students.

*Matthew L. Warman (Medical School) and members of the Department*

### **Genetics 219. Inheritance and Weird Stuff**

Catalog Number: 14189

*Chao-Ting Wu (Medical School) and Kami Ahmad (Medical School)*

### **Genetics 228. Genetics in Medicine - From Bench to Bedside**

Catalog Number: 9840

*Susan A. Slaugenhaupt (Medical School) and Christopher Holmes Newton-Cheh*

**HBTM 200. Principles and Practice of Human Pathology**

Catalog Number: 10575 Enrollment: Enrollment may be limited

*Ronny I. Drapkin (Medical School)*

**Immunology 202. Advanced Principles of Immunology**

Catalog Number: 5674

*D. Branch Moody (Medical School) and Martin E. Hemler (Medical School)*

**Immunology 204. Critical Readings for Immunology**

Catalog Number: 9563

*Florian Winau (Medical School)*

**\*Immunology 301. Immunology Seminar**

Catalog Number: 4971 Enrollment: Limited to 20.

*Michael C. Carroll (Medical School) and William Nicholas Haining (Medical School)*

**Microbiology 201. Molecular Biology of the Bacterial Cell**

Catalog Number: 38739

*David Z. Rudner (Medical School), Thomas G. Bernhardt (Medical School), Simon L. Dove (Medical School), and Ann Hochschild (Medical School)*

**\*Microbiology 210. Microbial Sciences: Chemistry, Ecology, and Evolution**

Catalog Number: 63006 Enrollment: Limited to 30.

*Michael S. Gilmore (Medical School)*

**Microbiology 213. Social Issues in Biology**

Catalog Number: 7905 Enrollment: Limited to 20.

*Jonathan R. Beckwith (Medical School) and Louis Guenin (Medical School)*

**Neurobiology 204. Neurophysiology of Central Circuits**

Catalog Number: 5603

*Rachel I. Wilson (Medical School), John A. Assad (Medical School), Richard T. Born (Medical School), Michael Tri Hoang Do (Medical School), Christopher D. Harvey (Medical School), and Margaret S. Livingstone (Medical School)*

**Neurobiology 207. Developmental Neurobiology**

Catalog Number: 4977 Enrollment: Limited to 20.

*Lisa V. Goodrich (Medical School), Michela Fagiolini (Medical School), Chenghua Gu (Medical School), and Beth Stevens (Medical School)*

**Neurobiology 209. Neurobiology of Disease**

Catalog Number: 5562

*Edward A. Kravitz (Medical School), Susanna Mierau (Medical School) and members of various clinical and basic science departments*

**Neurobiology 221. Molecular Neurobiology**

Catalog Number: 0443

*Sandeep Robert Datta (Medical School), Jonathan B. Cohen (Medical School), Pascal Kaeser (Medical School), Joshua M. Kaplan (Medical School)*

**SGBT 202. Clinical Aspects of Hearing and Speech**

Catalog Number: 69294 Enrollment: Limited to 15. Minimum of 5

*Joseph B. Nadol (Medical School and MEEI) and Konstantina Stankovic (Medical School and MEEI)*

**\*SGBT 203. Anatomy of Speech and Hearing (JANUARY COURSE – see January first meeting of courses for detailed information)**

Catalog Number: 17772 Enrollment: Limited to 12.

*Barbara C. Fullerton (Medical School), James Tracey Heaton (Medical School), and James Bradley Kobler (Medical School)*

**SGBT 204. Speech Communication**

Catalog Number: 47986 Enrollment: Limited to 20.

*Robert E. Hillman (Medical School) and other faculty*

**SGBT 205. Neural Coding and Perception of Sound**

Catalog Number: 63093 Enrollment: Limited to 20.

*Bertrand Delgutte (Medical School), M. Christian Brown (Medical School), John J. Guinan (Medical School), Jennifer R. Melcher (Medical School), and Daniel B. Polley (Medical School)*

**Virology 201. Virology**

Catalog Number: 1190

*Sean P.J. Whelan (Medical School), James M. Cunningham (Medical School), David T. Evans (Medical School), and Michaela Gack*

***Cross-listed under Neurobiology:***

**\*Psychology 2060. Reward and Self Control**

Catalog Number: 13358 Enrollment: Limited to 15. For graduate students and upper-level undergraduates with permission of instructor.

*Joshua William Buckholtz*

***Other courses of interest:***

**Biophysics 205. Computational and Functional Genomics**

Catalog Number: 6777 Enrollment: Limited to 20.

*Martha L. Bulyk (Medical School), Suzanne Gaudet (Medical School), and Shamil R. Sunyaev (Medical School)*

**Systems Biology 201. Principles of Animal Development from a Systems Perspective**

Catalog Number: 5148

*Sean Megason (Medical School), Angela Depace (Medical School), and Marc W. Kirschner (Medical School)*

## Biological Chemistry and Molecular Pharmacology (BCMP)

### **BCMP 201. Biological Macromolecules: Structure, Function and Pathways**

Catalog Number: 5068

*Stephen C. Harrison (Medical School), Stephen C. Blacklow (Medical School), and Peter K. Sorger (Medical School)*

*Half course (spring term). Tu., Th., 9:30–11, W., 4–5:30.*

Macromolecular structure with emphasis on biochemistry, interactions and catalysis in cellular processes and pathways. Links between theory and observation will emerge from discussion of fundamental principles, computational approaches and experimental methods.

*Note:* The course is intended for all Division of Medical Sciences (DMS) graduate students and is open to advanced undergraduates. Offered jointly with the Medical School as BP 714.0.

### **Spring 2014**

**First Meeting:** Tuesday, January 28, 2014

**Final Meeting:** Thursday, May 8, 2014

**Location:** Building C, Cannon Room (Tu. and Th.). Wednesday locations announced in class.

**Course Head:** Stephen Harrison, [schadmin@crystal.harvard.edu](mailto:schadmin@crystal.harvard.edu)

**Teaching Assistants:** Aaron Schmidt, Kelly Arnett and Marco Vilela

**\*BCMP 213. Behavioral Pharmacology**

Catalog Number: 4782 Enrollment: Limited to 15.

*Jack Bergman (Medical School) and Brian D. Kangas (Medical School)*

*Half course (spring term). Tu., Th., 3:30-5:00*

Introduction to behavioral pharmacology of CNS drugs (e.g., psychomotor stimulants, antischizophrenics, opioid analgesics, antianxiety agents); seminar format with emphasis on behavioral methodology (i.e., model and assay development) and pharmacological analysis (i.e., receptor selectivity and efficacy); attention to tolerance, drug dependence/addiction/treatment, and basic behavioral processes.

*Note:* Offered jointly with the Medical School as BP 719.0.

**Spring 2014**

**First Meeting:** Tuesday, January 28, 2014

**Final Meeting:** Thursday, May 8, 2014

**Location:** Sever Hall, Room 212

**Course Head:** Jack Bergman, [jack\\_bergman@hms.harvard.edu](mailto:jack_bergman@hms.harvard.edu)

### **BCMP 234. Cellular Metabolism and Human Disease**

Catalog Number: 9644 Enrollment: May be limited

*Thomas Michel (Medical School), Cheryl Vaughan (FAS/DCE), and members of the Department Half course (spring term). M., W., F., 9-10:30.*

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.

*Note:* Also listed as MCB 234.

*Prerequisite:* Knowledge of introductory biochemistry, genetics, and cell biology required (MCB 52 and 54 or equivalent); one year of organic chemistry.

### **Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Wednesday, May 7, 2014

**Location:** Countway Room 403 at HMS and Room 304 at the Division of Continuing Education (1 Story St., Cambridge)

**Course Head:** Thomas Michel, [thomas\\_michel@harvard.edu](mailto:thomas_michel@harvard.edu)

**Curriculum Fellow:** Joya Mukerji, [joya\\_mukerji@hms.harvard.edu](mailto:joya_mukerji@hms.harvard.edu), 617 432-7860



### **BCMP 236. Modern Drug discovery: from principles to patients**

Catalog Number: TBA, Enrollment: May be limited.

*Nathanael Gray (Medical School) and members of the Department  
Half course (spring term). Tu., Th., 3:30-5.*

This course will familiarize students with central concepts in drug action and therapeutics at the level of molecules, cells, tissues and patients. These concepts and methods are central to modern drug development and regulatory evaluation. In the 1<sup>st</sup> half of the course we will cover drug-target interactions, Pharmacokinetics and Pharmacodynamics at a quantitative level, the clinical trials process, biomarkers and new frontiers in Therapeutic development. The 2nd half will focus on modern approaches to therapeutic discovery and development, both small molecules and protein based. Examples are drawn from numerous unmet medical needs including cancer, HIV, neurodegenerative and infectious diseases. The course will include computational exercises and a MATLAB workshop.

*Note:* 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 2014**

**Meeting Dates:** January 28, 30, February 4, 6, 11, 13, 18, 20, 25, 27, March 4, 6, 11, 13, 25, 27, April 1, 3, 8, 10, 15, 17, 22, 23, 25, 29, May 1, 6, 8, 13, 15

**Meeting Time:** 3:30pm to 5pm

**First Meeting:** Tuesday, January 28, 2014

**Final Meeting:** Thursday, May 15, 2014

**Location:** TMEC 324

**Class size:** May be limited

**Course Head:** Nathanael Gray, [nathanael\\_gray@dfci.harvard.edu](mailto:nathanael_gray@dfci.harvard.edu)

**Curriculum Fellow:** Catherine Dubreuil, [catherine\\_dubreuil@hms.harvard.edu](mailto:catherine_dubreuil@hms.harvard.edu)

## Cell Biology

### **Cell Biology 201. Molecular Biology of the Cell**

Catalog Number: 1044

*Marcia Haigis (Medical School)*

*Half course (spring term). M., W., 10:30-12, and sections F., at 10:30-12.*

Molecular basis of cellular compartmentalization, protein trafficking, cytoskeleton dynamics, mitosis, cell locomotion, cell cycle regulation, signal transduction, cell-cell interaction, cell death, and cellular/biochemical basis of diseases.

*Note:* 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.

*Prerequisite:* Basic knowledge in biochemistry, genetics and cell biology.

### **Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Wednesday, May 7, 2014

**Location:** Lectures in Building C, Cannon Room. Breakout rooms: TMEC 333, TMEC 334, TMEC 340, TMEC 423, TMEC 426, TMEC 443, TMEC 445, TMEC 446

**Course Head:** Marcia Haigis, [Marcia\\_haigis@hms.harvard.edu](mailto:Marcia_haigis@hms.harvard.edu)

**Curriculum Fellow:** Abha Ahuja, [abha\\_ahuja@hms.harvard.edu](mailto:abha_ahuja@hms.harvard.edu), 414-467-8348

## **Cell Biology 207. Developmental Biology: Molecular Mechanisms of Vertebrate Development**

Catalog Number: 2044 Enrollment: Limited to 25.

*Andrew B. Lassar (Medical School), John G. Flanagan (Medical School), Wolfram Goessling (Medical School), Jordan A. Kreidberg (Medical School), Sean Megason (Medical School), Trista Elizabeth North (Medical School), Ramesh Shivdasani (Medical School), Jessica Whited (Medical School), and Malcolm Whitman (Dental School).*

*Half course (spring term). M., Th., 2-4.*

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. Morphogenesis, organogenesis, stem cells and regeneration will also be discussed.

*Note:* 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.

### **Schedule**

#### **Signaling pathways in development and establishment of the body plan**

27-Jan-13	Mon	Lecture	A tool box to tinker an embryo and the vertebrate game plan	Lassar
30-Jan-13	Thur	Lecture	Molecular signals that control cell fate specification through gastrulation	Megason
3-Feb-13	Mon	Conference	Morphogens and mesoderm/neural induction	Megason/Lassar
6-Feb-13	Thur	Lecture	Wnt signaling, antero-posterior patterning and epithelial-mesenchymal transitions	Kreidberg
10-Feb-13	Mon	Conference	Gastrulation, cellular basis for morphogenesis	Megason/Kreidberg
13-Feb-13	Thur	Lecture	Hox codes and anteroposterior axis specification	Flanagan
17-Feb-13	Mon	President's Day!		
20-Feb-13	Thur	Conference	Antero-posterior patterning the embryo	Flanagan/Shivdasani
24-Feb-13	Mon	Lecture	Placode and neural crest development	Megason
27-Feb-13	Thur	Lecture	Metamerization of paraxial mesoderm and DV patterning of the neural tube	Lassar
3-Mar-13	Mon	Conference	Patterning the neural tube	Lassar/Flanagan
6-Mar-13	Thur	Student presentations	Discussion rooms are reserved from 2-5	Shivdasani/Kreidberg
				Flanagan/Lassar

#### **Patterning of the mesoderm and the neural tube**

10-Mar-13	Mon	Lecture	Axonal connections	Flanagan
13-Mar-13	Thur	Conference	Axonal connections	Flanagan/Lassar
17-Mar-13	Mon	Spring Vacation		
20-Mar-13	Thur	Spring Vacation		
24-Mar-13	Mon	Lecture	Myogenesis and chondrogenesis	Lassar
27-Mar-13	Thur	Conference	myogenic stem cells	Lassar/Flanagan
31-Mar-13	Mon	Lecture	Germ cell development	North
3-Apr-13	Thur	Lecture	Vasculogenesis and Hematopoiesis	North
7-Apr-13	Mon	Conference	Blood and vascular stem cells	North/Goessling
10-Apr-13	Thur	Student Presentations	Discussion rooms are reserved from 2-5	Flanagan/North
				Kreidberg/Goessling

### **Principles of organogenesis, stem cells and regeneration**

14-Apr-13	Mon	Lecture	Organogenesis of branching organs	Kreidberg
17-Apr-13	Thur	Conference	Epithelial differentiation in organogenesis	Kreidberg/North
21-Apr-13	Mon	Lecture	Limb patterning	Whited
24-Apr-13	Thur	Conference	Limb regeneration	Lassar/Whited
28-Apr-13	Mon	Lecture	Endoderm patterning	Shivdasani
1-May-13	Thur	Lecture	Liver Development and regeneration	Goessling
5-May-13	Mon	Conference	Endoderm patterning	Goessling/Shivdasani
8-May-13	Thur	Lecture	Regenerative Biology	North/Goessling
12-May-13	Mon	Conference	Zen and the Art of Embryo Construction	Lassar/Megason
15-May-13	Thur	Student presentations	Discussion rooms are reserved from 2-5	Whited/North
				Lassar/Goessling

### **Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Thursday, May 15, 2014

**Location:** Lectures: TMEC 309; Breakout rooms: TMEC 204 and 205

**Course Head:** Andrew B. Lassar, [andrew\\_lassar@hms.harvard.edu](mailto:andrew_lassar@hms.harvard.edu)

**Cell Biology 211 (formerly Cell Biology 211a). Molecular and Systems Level Cancer Cell Biology**

Catalog Number: 5771

*Peter Sicinski (Medical School), Jarrod Marto (Medical School), and Marc Vidal (Medical School)*  
*Half course (spring term). M., W., 1-2:30.*

Examines the molecular basis of cancer formation including alterations in signal transduction pathways, cell cycle machinery, cell metabolism and apoptosis. Describes novel systems biology proteomic approaches to study cancer cell interactomes.

*Note:* Given alternate years with Cell Biology 212. Offered jointly with the Medical School as CB 704.0.

*Prerequisite:* General knowledge of biochemistry, molecular genetics, and cell biology.

**Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Wednesday, April 30, 2014

**Location:** TMEC 324

**Course Head:** Peter Sicinski, [peter\\_sicinski@dfci.harvard.edu](mailto:peter_sicinski@dfci.harvard.edu)

**Curriculum Fellow:** Megan Mittelstadt, [megan\\_mittelstadt@hms.harvard.edu](mailto:megan_mittelstadt@hms.harvard.edu), 617-432-7468

## Genetics

### **Genetics 202. Human Genetics**

Catalog Number: 8064 Enrollment: Minimum of 8 and maximum of 30 students.

*Matthew L. Warman (Medical School) and members of the Department*

*Half course (spring term). M., 12:30-4.*

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 followed by a class discussion.

*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 2014**

**First Meeting:** Monday January 27, 2014

**Final Meeting:** Monday April 28, 2014

**Location:** TMEC L-007 (subject to change)

**Course Head:** Matthew Warman, [matthew.warman@childrens.harvard.edu](mailto:matthew.warman@childrens.harvard.edu)

**Curriculum Fellow:** Emily Gleason, [emily\\_gleason@hms.harvard.edu](mailto:emily_gleason@hms.harvard.edu), 617-432-7203

## **Genetics 219. Inheritance and Weird Stuff**

Catalog Number: 14189

*Chao-Ting Wu (Medical School) and Kami Ahmad (Medical School)*

*Half course (spring). Tu., 11-2*

Focus on patterns of inheritance, including those that were once considered extraordinary but are now recognized as paradigms spanning fungi to humans. Expectations: questions, ideas, conversation during class. No tests, problem sets, or papers.

*Prerequisite:* Primarily for first-year graduate students, but is open to medical students and advanced undergraduates. A basic understanding of genetics recommended.

### **Spring 2014**

**First Meeting:** Tuesday, January 28, 2014

**Final Meeting:** Tuesday, April 29, 2014

**Location:** TMEC 446

**Course Head:** Ting Wu, [twu@genetics.med.harvard.edu](mailto:twu@genetics.med.harvard.edu)

## **Genetics 228. Genetics in Medicine - From Bench to Bedside**

Catalog Number: 9840

*Susan A. Slaugenhaupt (Medical School) and Christopher Holmes Newton-Cheh*  
*Half course (spring term). F., 2–5.*

Medical practice is rapidly evolving due to advances in the field of human genetics. Translation of basic laboratory discoveries to the clinic can be illustrated by the genetic research cycle:

Definition of phenotypic variation in patient populations --> isolation of genes underlying the phenotypic variation --> characterization in humans and model organisms of the mechanisms that lead from genotype to phenotype --> use of these findings to improve diagnosis, disease management and to bring effective treatments to the patient population.

This course will utilize examples from a variety of human disorders in order to illustrate the successful progression of the genetic research cycle. In addition, we will discuss the ethical implications of genetic research and testing, and have hands-on computer training to teach students how to utilize the relevant genetic databases.

*Structure of the course:* Each class will focus on a specific genetic disorder and will include a clinical discussion and patient presentation if appropriate, followed by lectures and a detailed discussion of recent laboratory findings. 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.

*Note:* Course will be held at MGH (transportation provided to MGH). Offered jointly with the Medical School as GN 711.0. For more information visit [Massachusetts General Hospital](#).

*Prerequisite:* Genetics 201 or equivalent.

### **Schedule**

<b>Date</b>	<b>Topic</b>	<b>Organizer/Speakers</b>	<b>Simches Location</b>
January 31	Focus on Huntington's Disease	Dr. James Gusella Dr. Marcy MacDonald Dr. H. Diana Rosas	Simches 3.120
February 7	Focus on Alzheimer's Disease	Dr. Alireza Atri Dr. Rudy Tanzi	Simches 3.120
February 14	Familial Dysautonomia	Dr. Susan Slaugenhaupt	Simches 3.120
February 21	TBA	TBA	Simches 3.120
March 7	Inflammatory Bowel Diseases	Dr. Ramnik Xavier Dr. Mark Daly	Simches 3.120
March 14	Phakomatosis: Focus on TSC and NF2	Dr. Scott Plotkin Dr. Vijaya Ramesh Dr. Elahna Paul	Simches 3.120
March 28	Breast Cancer	Dr. Leif William Ellisen Kristen Shannon	Simches 3.120
April 4	The Genetic Basis of Type 2 Diabetes	Dr. Jose Florez	Simches 3.120
April 11	Focus on Schizophrenia and Bipolar Disorder and Association Study Methodology	Dr. Roy Perlis Dr. Ben Neale	Simches 3.120
April 18	Genetics of Blood Lipids and Risk of Myocardial Infarction	Dr. Sekar Kathiresan	Simches 3.120



April 25	Blood Pressure Genetics	Dr. Chris Newton-Cheh	Simches 3.120
May 2	TBA	TBA	Simches 3.120

**Spring 2014**

**First Meeting:** Friday, January 31, 2014

**Final Meeting:** Friday, May 9, 2014

**Location:** Simches Research Center, MGH, 3rd floor. Room 3120 and 3130. Transportation will be provided from Vanderbilt Hall at 1:30 pm

**Course Head:** Christopher Holms Newton-Cheh, [cnewtoncheh@partners.org](mailto:cnewtoncheh@partners.org)

**Course Contact:** Susan A. Slaughaupt, [slaugenhaupt@chgr.mgh.harvard.edu](mailto:slaugenhaupt@chgr.mgh.harvard.edu)

## Human Biology and Translational Medicine (HBTM)

### **HBTM 200. Principles and Practice of Human Pathology**

Catalog Number: 10575 Enrollment: Enrollment may be limited

Ronny I. Drapkin (Medical School) 5912

*Half course (spring term). Tu., Th., 9–11; lab Thursday, 11-1.*

Overview of human pathology, emphasis on mechanisms of disease and modern diagnostic technologies. Integrated lectures, labs, and student-driven term project leading to formal presentation on a medical, socioeconomic, or technological issue in human pathology.

*Note:* Jointly offered with HMS as HT035.0.

### **Spring 2014**

**First Meeting:** Tuesday, February 4, 2014

**Final Meeting:** Thursday, May 15, 2014

**Location:** TMEC 333. Labs will be held in TMEC 202, TMEC 203, TMEC 206, TMEC 207.

**Course Head:** Ronny I. Drapkin, [Ronny\\_Drapkin@dfci.harvard.edu](mailto:Ronny_Drapkin@dfci.harvard.edu)

## Immunology

### **Immunology 202. Advanced Principles of Immunology**

Catalog Number: 5674

*D. Branch Moody (Medical School) and Martin E. Hemler (Medical School)*

*Half course (spring term). Tu., Th., 1:30–4.*

Continuation of Immunology 201 as an intensive core course in fundamentals of the immune system with emphasis on physiological roles of immune cells in vivo. Classes taught by experts in their fields; involve critical reading of primary literature.

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

*Prerequisite:* Immunology 201 or its equivalent.

### **Spring 2014**

**First Meeting:** Tuesday, January 28, 2014

**Final Meeting:** Tuesday, May 6, 2014

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

**Course Head:** D. Branch Moody, [bmoody@rics.bwh.harvard.edu](mailto:bmoody@rics.bwh.harvard.edu)

## **Immunology 204. Critical Readings for Immunology**

Catalog Number: 9563

*Florian Winau (Medical School)*

*Half course (spring term). Th., 10-1.*

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.

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

### **Spring 2014**

**First Meeting:** Thursday, January 30, 2014

**Final Meeting:** Thursday, May 8, 2014

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

**Course Head:** Florian Winau, [florian.winau@childrens.harvard.edu](mailto:florian.winau@childrens.harvard.edu)

**\*Immunology 301. Immunology Seminar**

Catalog Number: 4971 Enrollment: Limited to 20.

*Michael C. Carroll (Medical School) and William Nicholas Haining (Medical School)*

*Half course (fall term; repeated spring 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.

**Spring 2014**

**First Meeting:** Wednesday, January 29, 2014

**Final Meeting:** Wednesday, May 7, 2014

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

**Course Head:** Michael C. Carroll, [michael.carroll@childrens.harvard.edu](mailto:michael.carroll@childrens.harvard.edu)

## Microbiology and Immunobiology

### **Microbiology 201. Molecular Biology of the Bacterial Cell**

Catalog Number: 38739

*David Z. Rudner (Medical School), Thomas G. Bernhardt (Medical School), Simon L. Dove (Medical School), and Ann Hochschild (Medical School)*

*Half course (spring term). Tu., Th., 10–12.*

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 2014**

**First Meeting:** Tuesday, January 28, 2014

**Final Meeting:** Thursday, May 8, 2014

**Location:** New Research Building (NRB), Room 1031

**Course Head:** David Z. Rudner, [david\\_rudner@hms.harvard.edu](mailto:david_rudner@hms.harvard.edu)

**Curriculum Fellow:** Zofia Gajdos, [zofia\\_gajdos@hms.harvard.edu](mailto:zofia_gajdos@hms.harvard.edu), 617-432-1871

**\*Microbiology 210. Microbial Sciences: Chemistry, Ecology, and Evolution**

Catalog Number: 63006 Enrollment: Limited to 30.

*Michael S. Gilmore (Medical School)*

*Half course (spring term). F., 8:30, F., 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.

*Note:* Co-listed 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 2014**

**First Meeting:** Friday, January 31, 2014

**Final Meeting:** Friday, May 2, 2014

**Location:** Shaler Seminar Room, Room 413 – (Geological Museum, 24 Oxford St, 4th floor)

**Head:** Michael S. Gilmore, [michael\\_gilmore@meei.harvard.edu](mailto:michael_gilmore@meei.harvard.edu)

### **Microbiology 213. Social Issues in Biology**

Catalog Number: 7905 Enrollment: Limited to 20.

*Jonathan R. Beckwith (Medical School) and Louis Guenin (Medical School)*

*Half course (spring term). Th., 1–4.*

Discussion topics selected from: history, philosophy of science; evolution vs. creationism; genetics, gender and race; genetic testing; science journalism; genetics and criminality; science in wartime; scientists' social responsibility; theater and the public presentation of science.

*Note:* 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 2014**

**Meeting Dates:** January 30; February 6, 13, 20, 27; March 6, 13, 20, 27; April 3, 10, 17, 24; May 1

**First Meeting:** Thursday, January 30, 2014

**Final Meeting:** Thursday, May 1, 2014

**Location:** NRB 833

**Course Head:** Jonathan R. Beckwith, [jon\\_beckwith@hms.harvard.edu](mailto:jon_beckwith@hms.harvard.edu)



## Neurobiology

### **Neurobiology 204. Neurophysiology of Central Circuits**

Catalog Number: 5603

*Rachel I. Wilson (Medical School), John A. Assad (Medical School), Richard T. Born (Medical School), Michael Tri Hoang Do (Medical School), Christopher D. Harvey (Medical School), and Margaret S. Livingstone (Medical School)*

*Half course (spring term). M., W., 10-12.*

This course introduces major themes and fundamental concepts underlying current research in systems neuroscience. Each week covers a different theme, and draws on research from different sensorimotor modalities and model organisms.

*Note:* Offered jointly with the Medical School as NB 721.0.

*Prerequisite:* Neurobiology 200 or with permission of instructor.

### **Spring 2014**

**First Meeting:** Wednesday, January 29, 2014

**Final Meeting:** Monday, April 28, 2014

**Location:** Goldenson Building, Room 229

**Course Head:** Rachel I. Wilson, [rachel\\_wilson@hms.harvard.edu](mailto:rachel_wilson@hms.harvard.edu)

## **Neurobiology 207. Developmental Neurobiology**

Catalog Number: 4977 Enrollment: Limited to 20.

*Lisa V. Goodrich (Medical School), Michela Fagiolini (Medical School), Chenghua Gu (Medical School), and Beth Stevens (Medical School)*

*Half course (spring term). F., 10–12, W., 1:30-3:30.*

Advanced topics in nervous system development, including cell fate determination, axon guidance, synapse development and critical periods. Focus on current areas of investigation, unresolved questions, and common experimental approaches.

*Note:* Offered jointly with the Medical School as NB 720.0. Students will read and discuss primary literature in the discussion sessions. Emphasis will be given to learning how to identify an important question and develop a feasible research plan, including a lecture on how to write a grant proposal and a mock study section. The final exam consists of a grant proposal; grades will also be determined by successful completion of homework assignments and class participation.

*Prerequisite:* Neurobiology 200 or with permission of instructor.

### **Spring 2014**

**First Meeting:** Wednesday, January 29, 2014

**Final Meeting:** Friday, April 25, 2014

**Location:** Goldenson Building, Room 422

**Course Head:** Lisa V. Goodrich, [lisa\\_goodrich@hms.harvard.edu](mailto:lisa_goodrich@hms.harvard.edu)

## **Neurobiology 209. Neurobiology of Disease**

Catalog Number: 5562

*Edward A. Kravitz (Medical School), Susanna Mierau (Medical School) and members of various clinical and basic science departments*

*Half course (spring term). M., 6-8:30, W., 7-9:30.*

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.

*Note:* Given in alternate years. Offered jointly with the Medical School as NB 713.0. For advanced undergraduate, graduate students, MD and MD/PhD students.

*Prerequisite:* Introductory neurobiology, biochemistry, and genetics/molecular biology recommended.

### **Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Wednesday, April 30, 2014

**Location:** Goldenson Building, Room 122

**Course Head:** Edward Kravitz, [Edward\\_Kravitz@hms.harvard.edu](mailto:Edward_Kravitz@hms.harvard.edu)

## **Neurobiology 221. Molecular Neurobiology**

Catalog Number: 0443

*Sandeep Robert Datta (Medical School), Jonathan B. Cohen (Medical School), Pascal Kaeser (Medical School), Joshua M. Kaplan (Medical School)*  
*Half course (spring term). Tu., Th., 10-12.*

Molecular biology and genetics of the nervous system. Emphasis on importance of ligand-receptor interactions and receptor regulation for the function of the nervous system, on the mechanisms of storage and release of neurotransmitters, and the molecular genetics of the nervous system.

*Note:* Offered jointly with the Medical School as NB 715.0.

*Prerequisite:* Introductory neurobiology and molecular biology. Permission of the instructor required for undergraduates.

### **Spring 2014**

**First Meeting:** Tuesday, January 30, 2014

**Final Meeting:** Tuesday, April 29, 2014

**Location:** Goldenson Building, Room 422

**Course Head:** Bob Datta, [srdatta@hms.harvard.edu](mailto:srdatta@hms.harvard.edu)

## Speech and Hearing Bioscience and Technology

### **SHBT 202. Clinical Aspects of Hearing and Speech**

Catalog Number: 69294 Enrollment: Limited to 15. Minimum of 5

*Joseph B. Nadol (Medical School and MEEI) and Konstantina Stankovic (Medical School and MEEI)*  
*Half course (spring term). M., W., 5–7. Clinical observations M.-F., 8-3.*

Clinical approach to speech and hearing disorders as practiced by physicians, audiologists, speech clinicians, rehabilitation specialists, bioengineers. Includes observation of patient care in clinic and operating room, audiology/balance disorders experience, lectures and discussion groups.

*Note:* Offered jointly with HST 724 at MIT. Classes to be held at the Massachusetts Eye and Ear Infirmary (MEEI)

*Prerequisite:* Anatomy of Speech and Hearing, Acoustics of Speech and Hearing or permission of the course director

### **Spring 2014**

**First Meeting:** Tuesday, January 28, 2014 (Clinical Observation)

**Final Exam:** Tuesday, May 13, 2014

**Location:** MEEI, 4<sup>th</sup> floor Conference Room, 243 Charles Street, Boston

**Course Head:** Joseph B. Nadol, [joseph\\_nadol@meei.harvard.edu](mailto:joseph_nadol@meei.harvard.edu) and  
Konstantina Stankovic, [konstantina\\_stankovic@meei.harvard.edu](mailto:konstantina_stankovic@meei.harvard.edu)

**Course Contact:** [bbbeard@meei.harvard.edu](mailto:bbbeard@meei.harvard.edu)

**\*SGBT 203. Anatomy of Speech and Hearing (JANUARY COURSE – see January first meeting of courses for detailed information)**

Catalog Number: 17772 Enrollment: Limited to 12.

*Barbara C. Fullerton (Medical School), James Tracey Heaton (Medical School), and James Bradley Kobler (Medical School)*

*Half course (spring term). January Course. Lecture: M.-F., 9:30-10:30, Lab: M.-F., 10:30-1*

This course covers anatomy of the head and neck, with cadaver dissection, stressing structures important in speech and hearing. Lecture topics also include basic neuroanatomy, imaging, surgery, and cancer of head and neck.

*Note:* Offered jointly with MIT as HST 718. Classes to be held at the Harvard Medical School campus (HMS)

*Prerequisite:* Introductory biology or equivalent and permission of the course director.

**Spring 2014**

**First Meeting:** Thursday, January 2, 2014

**Final Meeting:** Friday, January 24, 2014

**Location:** TMEC 443 (with the exception of labs)

**Course Head:** Barbara C. Fullerton, [barbara\\_fullerton@meei.harvard.edu](mailto:barbara_fullerton@meei.harvard.edu)

**SHBT 204. Speech Communication**

Catalog Number: 47986 Enrollment: Limited to 20.

*Robert E. Hillman (Medical School) and other faculty*

*Half course (spring term). Tu., Th., 11–12:30.*

Survey of human speech communication. Acoustic theory of speech production; physiologic and acoustic descriptions of phonetic features, prosody, voice and speech perception and speech motor control. Applications to recognition, synthesis and speech disorders.

*Note:* Offered jointly with MIT course HST.710. ***Classes to be held at MIT.***

*Prerequisite:* Background equivalent to MIT HST.714.

**Spring 2014**

**First Meeting:** Tuesday, February 4, 2014

**Final Meeting:** TBD

**Location:** Room 34-302 at MIT

**Course Head:** Robert E. Hillman, [hillman.robert@mgh.harvard.edu](mailto:hillman.robert@mgh.harvard.edu)

## **SHBT 205. Neural Coding and Perception of Sound**

Catalog Number: 63093 Enrollment: Limited to 20.

*Bertrand Delgutte (Medical School), M. Christian Brown (Medical School), John J. Guinan (Medical School), Jennifer R. Melcher (Medical School), and Daniel B. Polley (Medical School)*  
*Half course (spring term). M., W., 9:30–11:30, Occasional lab on Friday.*

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, and auditory scene analysis.

*Note:* Offered jointly with MIT HST.723J. Classes to be held at the Harvard Medical School campus (HMS). *Prerequisite:* Neurobiology 200 or Permission of the instructor.

### **Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Wednesday, May 7, 2014

**Tentative Final Exam:** Monday, May 12, 2014

**Location:** TMEC 334

**Course Head:** Bertrand Delgutte, [bertrand\\_delgutte@meei.harvard.edu](mailto:bertrand_delgutte@meei.harvard.edu)



## Virology

### **Virology 201. Virology**

Catalog Number: 1190

*Sean P.J. Whelan (Medical School), James M. Cunningham (Medical School), David T. Evans (Medical School), and Michaela Gack*

*Half course (spring term). M., W., 2:30-4:00pm.*

Literature based reading. Proposal writing. Course covers a broad range of topics: viral genetics, structure/replication, pathogenesis, evolution ("emerging viruses"), chronic infection, latency, innate and adaptive immunity, anti-viral drugs and vaccine strategies.

*Note:* Offered jointly with the Medical School as MG 723.0.

*Prerequisite:* Graduate standing and permission required.

### **Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Wednesday, May 14, 2014

**Location:** TMEC 447 (with the exception of March 31; lecture will take place in TMEC 333)

**Course Head:** Sean Whelan, [sean\\_whelan@hms.harvard.edu](mailto:sean_whelan@hms.harvard.edu)

## Other Courses of Interest

### **Biophysics 205. Computational and Functional Genomics**

Catalog Number: 6777 Enrollment: Limited to 20.

*Martha L. Bulyk (Medical School), Suzanne Gaudet (Medical School), and Shamil R. Sunyaev (Medical School)*

*Half course (spring term). M., W., 2:30–4. Enrollment: Limited to 20.*

This is an upper-level critical paper reading and discussion course in the areas of experimental and computational functional genomics. Introductory lectures will be interspersed within the topic blocks, with most of the meeting time devoted to critical discussion of assigned journal articles. Students will be responsible for presenting assigned articles throughout the semester and for leading class discussions of those articles. There will be written and oral presentations of final student proposals at the end of the term.

*Prerequisite:* Molecular biology and introductory statistics. Harvard BS 50 or BS 52 or the equivalent. Permission of the instructors is required.

### **Spring 2014**

**First Meeting:** Monday, January 27, 2014

**Final Meeting:** Wednesday, May 7, 2014 (*unless otherwise announced*)

**Course Location:** Building C, Folin-Wu Room

**Course Head:** Martha L. Bulyk, [mlbulyk@receptor.med.harvard.edu](mailto:mlbulyk@receptor.med.harvard.edu)

**Systems Biology 201. Principles of Animal Development from a Systems Perspective**

Catalog Number: 5148

*Sean Megason (Medical School), Angela Depace (Medical School), and Marc W. Kirschner (Medical School)*

*Half course (spring term). Tu., Fri., 3:30 – 5:00. EXAM GROUP: 16, 17*

Intensive and critical analysis of systems approaches to circuits and principles controlling pattern formation and morphogenesis in animals. Students develop their own ideas and present them through mentored "chalk talks" and other interactive activities.

**Course Contact:** Meaghan Fay, [Meaghan\\_fay@hms.harvard.edu](mailto:Meaghan_fay@hms.harvard.edu),  
Samantha Reed, [Samantha\\_Reed@hms.harvard.edu](mailto:Samantha_Reed@hms.harvard.edu)