

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

# First Meeting of Quarter Courses

## Spring Term 2016-2017

**Classes Start: Monday, January 23, 2017**

**Online Check-In (formerly known as registration):**

Wednesday, January 18, 2017 – Tuesday, January 27, 2017

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 16-17 academic year

***For information:*** Call **617-432-4134** or email [dms\\_courses@hms.harvard.edu](mailto:dms_courses@hms.harvard.edu)

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

**BCMP 312QC Quantitative Methods in Pharmacology**

Enrollment: Limited to 20

Jagesh Shah and Catherine Dubreuil **CANCELLED**

**Cell Biology 302QC Advanced Experimental Design for Biologists**

Enrollment Capacity: Limited to 24

Randall King and David Glass

**Cell Biology 304QC Introduction to Human Gross Anatomy**

Enrollment: Limited to 24

Gerald Greenhouse, Everett Anderson, Mohini Lutchman, Giorgio Giatsidis and David Cardozo

**Cell Biology 308QC Introduction to Histology for Graduate Students**

Enrollment: Limited to 11

Gerald Greenhouse, Everett Anderson, Stephen Liberles and Adrian Salic

**Genetic 302QC Teaching 101: Bringing Effective Teaching Practices to your Classroom**

Enrollment: Limited to 12

Bradley Coleman and Christopher Burtner

**Genetic 303QC Current Tools for Gene Analysis**

Enrollment: Limited to 18

Neena Haider

Curriculum Fellow: Emily Gleason

**HBTM 305QC Molecular Bases of Eye Disease**

Darlene Dartt and Magali Saint-Geniez

Course Coordinator: Bridget Boles

**Immunology 301OC Autoimmunity**

Francisco Quintana

**Immunology 302OC Clinical Sessions**

Rachael Clark

**Immunology 303QC The Warring Genomes: Innate Immunity and Host Defense**

Jonathan Kagan

**Immunology 305QC Neuro-Immunology Development, Regeneration and Disease**

Isaac Chiu, Beth Stevens and Michael Carroll

**Immunology 306QC Systems Immunology**

Nir Hacohen, Nick Haining and Christophe Benoist

**Medical Sciences 316OC PhD Pathfinder**

Enrollment: Limited to 50

David Cardozo and Joseph Arboleda

Course Manager: Lisa Rossini

**SHBT 301QC Speech and Hearing Laboratory Visits**

Bertrand Delgutte

**Virology 306QC Viruses of Bacteria and Archaea: Updates on Recent Key Literature**

Enrollment: Limited to 8

Max Nibert

## Biological Chemistry and Molecular Pharmacology

### **BCMP 312OC Quantitative Methods in Pharmacology CANCELLED**

*Jagesh Shah and Catherine Dubreuil*

2 Units. Enrollment: Limited to 20

Wed 1:00-3:00PM

This course will cover basic models of pharmacology using computational modeling tools. We will learn how to model basic enzyme kinetics and inhibition and whole body pharmacokinetics and use these to model specific problems in pharmacology. We will investigate case studies in infectious disease, glucose regulation, cancer therapy and unique examples of drug pharmacology. The course will be built around in-class coding exercises (using MATLAB and SimBiology) and homework assignments, as well as lectures from HMS faculty and industry leaders. No previous programming experience required. A basic understanding of enzyme kinetics and pharmacology is assumed

Course notes: A plus if taken Biochemistry classes, and BCMP 200 but not required

#### **Spring 2016**

**Meeting Dates:** TBD

**First Meeting:** TBD

**Final Meeting:** TBD

**Location:** please contact instructor

**Course Head:** Jagesh Shah, [jagesh\\_shah@hms.harvard.edu](mailto:jagesh_shah@hms.harvard.edu)

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

## Cell Biology

### **Cell Biology 302QC Advanced Experiment Designs for Biologists**

*Randall King and David Glass*

Units 2 Enrollment: Limited to 24

MW 4:00 -6:00

This course will focus on both the theory and practice of experimental design. The emphasis is on project planning and vetting, individual experimental design, and trouble-shooting. Special focus will be placed on methods to avoid experimental bias, and potential sources of inappropriate interpretation. Also the importance of system validation is especially emphasized.

### **Spring 2017**

**First Meeting Date:** Monday, January 30, 2017

**Final Meeting Date:** Wednesday, March 8, 2017

**Location:** TMEC 447

**Course Directors:** Randall King [randy\\_king@hms.harvard.edu](mailto:randy_king@hms.harvard.edu) and David Glass [david\\_glass@hms.harvard.edu](mailto:david_glass@hms.harvard.edu)

### **Cell Biology 304QC Introduction to Human Gross Anatomy**

*Gerald Greenhouse, Everett Anderson, Mohini Lutchman, Giorgio Giatsidis and David Cardozo*

Units 2 Enrollment: Limited to 24

MWF 12:00 – 7:00

Lectures, laboratory dissections, and prosections will provide students an opportunity to explore the gross structure and function of the human body. The course will provide a foundation for the student to acquire practical skills in recognizing, dissecting, and differentiating key anatomical structures. Structure/function relationships will be emphasized and some foundation will be provided for understanding the anatomic basis of diseases. Each of the 13 sessions will include a lecture, 3 hours of dissection, and an evening guest lecturer on clinical or research aspects related to the dissections (supper provided).

Notes: Open to graduate and undergraduate students. Students **must** sign up during the Spring semester sign up period.

### **Spring 2017**

**First Meeting Date:** Friday, June 2, 2017

**Final Meeting Date:** Friday, June 30, 2017

**Location:** TMEC 447

**Course Director:** Gerald Greenhouse [gerald\\_greenhouse@hms.harvard.edu](mailto:gerald_greenhouse@hms.harvard.edu)

## **Cell Biology 308QC Introduction to Histology for Graduate Students**

*Gerald Greenhouse, Everett Anderson, Stephen Liberles and Adrian Salic*

Units 2 Enrollment: Limited to 11

MWF 1:00 – 5:00

Histology—the study of structure and how structure relates to function, in cells and tissues. The class will include a session on each of the major tissue types—epithelium, connective, muscle, and nerve. This will be followed by sessions during which organ systems will be studied. Each session will include an introductory lecture followed by shared observation of slides using a 12-headed light microscope. Pathology correlates will be included when possible. In the last two sessions, students will have hands on training in tissue staining with recently developed compounds in the lab of Adrian Salic and learn frozen section technique on brain tissue from Stephen Liberles.

Notes: This course is offered usually during the month of June or July each year. Undergraduates may enroll. Students **must** sign up during the Spring semester sign up period.

### Spring 2017

First Meeting Date: Friday, July 7, 2017

Final Meeting Date: Friday, July 28, 2017

Location: TMEC 448

Course Director: Gerald Greenhouse [gerald\\_greenhouse@hms.harvard.edu](mailto:gerald_greenhouse@hms.harvard.edu)

## Genetics

### **Genetic 302QC Teaching 101: Bringing Effective Teaching Practices to your Classroom**

*Bradley Coleman and Christopher Burtner*

2 units Enrollment: Limited to 12

Th 2:00 – 4:00

A course to develop the skills of effective teaching. Primary focus is hands-on experience with objective-oriented lesson planning and execution, with emphasis on active learning techniques and how they can be applied in both large and small enrollment classes.

Notes: The class will meet on the following dates 2/2, 2/9, 2/16, 3/2, 3/9, 3/23, 2/30, 4/6, 4/13

#### **Spring 2017**

**First Meeting Date:** Thursday, February 2, 2017

**Final Meeting Date:** Thursday, April 6, 2017

**Location:** NRB 230

Course Heads: Bradley Coleman, [Bradley\\_Coleman@hms.harvard.edu](mailto:Bradley_Coleman@hms.harvard.edu) and Christopher Burtner, [Christopher\\_Burtner@hms.harvard.edu](mailto:Christopher_Burtner@hms.harvard.edu)

#### **Course Learning Objectives**

- Students will learn to plan lessons with clear goals and objectives.
- Students will distinguish between active and passive learning techniques and create active in-class activities that support their learning objectives.
- Students will become comfortable presenting material to students and gain confidence facilitating learning activities and discussions.

## **Genetic 303QC Current Tolls for Gene Analysis**

*Neena Haider*

2 Units Enrollment: Limited to 18

Th 10:00 – 12:00

The goal of this course is to explore a number of the current online tools to analyze genes, gene function, pathways, DNA, RNA, and protein analysis. Each class we will introduce a new online tool. The majority of the class will be spent exploring the tool together in an interactive manner. At the end of each class students will be given an assignment which utilizes the knowledge they gained in class and helps them to further explore the new tool. After taking this class students will be proficient in the use of each online tool and will be able to apply their knowledge to learning new tools and programs.

### **Spring 2017**

First Meeting Date: Thursday, February 2, 2017

Final Meeting Date: Thursday, April 13, 2017

Location: Countway L2-025

Course Head: Neena Haider, [neena.haider@schepens.harvard.edu](mailto:neena.haider@schepens.harvard.edu)

Curriculum Fellow: Emily Gleason, [Emily\\_Gleason@hms.harvard.edu](mailto:Emily_Gleason@hms.harvard.edu)

## Human Biology and Translational Medicine

### **HBTM 305QC Molecular Bases of Eye Disease**

*Darlene Dartt and Magali Saint-Geniez*

2 Units

M 3:00 – 5:00 pm

This course provides an overview of the pathogenic processes of prevalent ocular diseases. The goals of the course are: (i) to explore the structural and functional aspects of the eye relevant to understanding its pathology, (ii) to review the manifestations of common eye diseases and their effects on vision, (iii) to discuss current views and research in the pathophysiology, and strategies for therapeutic intervention. For most sessions, the basic science and clinical topics will be presented by two faculty lecturers.

### **Spring 2017**

**First Meeting:** Monday, January 23, 2017

**Final Meeting:** Monday, April 24, 2017

**Location:** Schepens Eye Research Institute, 2<sup>nd</sup> Floor Conference Room

**Course Heads:** Darlene Dartt [dartt@vision.eri.harvard.edu](mailto:dartt@vision.eri.harvard.edu) and Magali Saint-Geniez [magali@vision.eri.harvard.edu](mailto:magali@vision.eri.harvard.edu)

**Course Coordinator:** Bridget Boles, [Bridget\\_Boles@MEEL.HARVARD.EDU](mailto:Bridget_Boles@MEEL.HARVARD.EDU)

## Immunology

### **Immunology 301QC Autoimmunity**

*Francisco Quintana*

2 Units

M 4:00 – 6:00

This course will focus on basic immunological mechanisms of autoimmune diseases, with an emphasis on recent advances in the field. At each session, we will focus on a particular topic and discuss three important publications.

### **Spring 2017**

**First Meeting Date:** Monday, February 6, 2017

**Final Meeting Date:** Monday, May 22, 2017

**Location:** Jeffrey Modell Immunology Center, 2<sup>nd</sup> floor, Room 258

**Course Head:** Francisco Quintana, [franquin@broadinstitute.org](mailto:franquin@broadinstitute.org)

### **Immunology 302QC Clinical Sessions**

*Rachael Clark*

2 Units

T 12:00 – 1:00

Lectures by physician scientists and clinical exposure to patients with immunologically mediated diseases. The goal is to foster translational research into human immunologic disease.

Course Notes: Only first year Harvard Immunology PhD and Masters Students.

### **Spring 2017**

**First Meeting Date:** Tuesday, March 21, 2017

**Final Meeting Date:** Tuesday, May 9, 2017

**Location:** Jeffrey Modell Immunology Center, 2<sup>nd</sup> floor, Room 258

**Course Head:** Rachael Clark, [rclark@bwh.harvard.edu](mailto:rclark@bwh.harvard.edu)

## **Immunology 303OC The Warring Genomes: Innate Immunity and Host Defense**

*Jonathan Kagan*

2 Units

**Tue 4:00-6:00**

Focus on basic cellular and molecular aspects of innate immunity, with an emphasis on recent advances in the field. Each class will cover a specific topic, and supporting literature will be provided by the instructor.

### **Spring 2016**

**Meeting Dates: TBD**

**First Meeting: TBD**

**Final Meeting: TBD**

**Location:** please contact instructor

**Course Head:** Jonathan Kagan, [jonathan.kagan@childrens.harvard.edu](mailto:jonathan.kagan@childrens.harvard.edu)

## **Immunology 305QC Neuro-Immunology in Development, Regeneration and Disease**

*Isaac Chiu, Beth Stevens and Michael Carroll*

2 units

Th 4:00 – 6:30

It is increasingly clear that the nervous system and immune system share parallel molecular pathways, and communication between neurons and immune cells play significant roles in homeostasis and disease. This course will investigate current topics in neuro-immunology: CNS development, chronic pain, neuro-degeneration, aging, axon regeneration, auto-immunity and infection. We will focus our discussions on molecular mechanisms shared by the immune and nervous systems and the molecular cross-talk between these two systems.

Each class will cover a specific topic in neuro-immunology. Students should be prepared to lead discussions on pre-selected papers for each session.

### **Spring 2017**

**First Meeting Date:** Thursday, April 13, 2017

**Final Meeting Date:** Thursday, June 1, 2017

**Location:** Modell Center 258

**Course Heads:** Isaac Chiu, [isaac\\_chiu@hms.harvard.edu](mailto:isaac_chiu@hms.harvard.edu), Beth Stevens, [beth.stevens@childrens.harvard.edu](mailto:beth.stevens@childrens.harvard.edu) and Michael Carroll, [Michael.Carroll@childrens.harvard.edu](mailto:Michael.Carroll@childrens.harvard.edu).

**Immunology 306QC Systems Immunology**

*Nir Hacohen, Nick Haining and Christophe Benoist*

2 units

F 1:00 – 3:00

Our focus in this course is on the emerging field of systems immunology. Each session will review a class of experimental or computational approaches, followed by a critical discussion of illustrative papers. Hands-on workshops will introduce students to computational tools for analyzing large-scale datasets, focusing on gene expression.

**Spring 2017**

**First Meeting Date:** Friday, January 27, 2017

**Final Meeting Date:** Friday, April 28, 2017

**Location:** Modell Center 258

**Course Heads:** Nir Hacohen, [NHACOHEN@mgh.harvard.edu](mailto:NHACOHEN@mgh.harvard.edu), Nick Haining, [nicholas\\_haining@dfci.harvard.edu](mailto:nicholas_haining@dfci.harvard.edu), and Christophe Benoist, [cb@hms.harvard.edu](mailto:cb@hms.harvard.edu).

## Medical Sciences

### **Medical Sciences 316OC PhD Pathfinder**

*David Cardozo, Joseph Arboleda and Lisa Rossini*

2 Units Enrollment: Limited to 50, instructor consent required

**Monday - Friday, 5:00- 7:00 (with an hour after for networking session) \***

\*Students are required to attend all 5 sessions

The course is open to all Ph.D. students interested in learning about the range of career options available to biomedical Ph.Ds. The course includes talks, didactic sessions, workshops and networking events to promote interactions between students and invited speakers. There will be a special emphasis on helping students design their own career map using a tool created by RA Capital. After each session there will be a small networking reception for both the students and lecturers.

Students will learn about the many career paths available to people with advanced degrees in biomedical research including academia, biotech, patent law, science writing/publishing, consulting/business, education, and science policy/regulation.

A Ph.D. education provides students with fundamental knowledge about the principles and practice of the scientific method and promotes development of problem-solving skills in ways that are quite useful for many different professions. Students will have the opportunity to learn from experienced professionals representing each of these paths, to learn about strategies for career development, curriculum enrichment, and networking opportunities that will make them competitive for their career of choice.

Note: **Students are required to attend all five sessions.** To pre-register, contact Lisa Rossini at [Lisa\\_Rossini@hms.harvard.edu](mailto:Lisa_Rossini@hms.harvard.edu).

### **January Session 2017**

**Meeting Dates:** April 24, 2017 to April 28, 2017

**First Meeting:** April, January 24, 2017

**Final Meeting:** April, January 28, 2017

**Location:** Cannon Room

**Course Co-Directors:** David Cardozo & Joseph Arboleda

**Course Manager:** Lisa Rossini: [Lisa\\_Rossini@hms.harvard.edu](mailto:Lisa_Rossini@hms.harvard.edu)

## Speech and Hearing Sciences

### **SHBT 301QC Speech and Hearing Laboratory Visits**

Bertrand Delgutte

2 Units

W

Research on topics in theoretical, experimental, clinical, or translational aspects of Speech and Hearing Sciences arranged on an individual basis with a research supervisor.

### **Spring 2017**

**First Meeting:** Wednesday January 27, 2017

**Final Meeting:** Wednesday April 27, 2017

**Location:** Varies

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

## Virology

### **Virology 306QC Viruses of Bacteria and Archaea: Updates on Recent Key Literature**

*Max Nibert*

2 Units Enrollment: Limited to 8. Instructor consent required

Tue and Thu 1:30 – 3:30

In this course, we will expand our view, commonly focused on viruses of humans and sometimes other vertebrates, to viruses of bacteria and archaea. Emphasis will be placed on exciting new findings in the recent literature. Active student participation will be expected and essential for the success of this readings- and discussions-based course, which is intended for students with previous advanced background in virology.

Course Notes: This course will be offered in spring term of odd-numbered years, starting 2017. It will be replaced in spring term of even-numbered years by Virology 302QC, Viruses of Non-vertebrate Eukaryotic Hosts

Prerequisite: Virology 200, or equivalent approved by course director

#### **Spring 2017**

**First Meeting:** Tuesday March 21, 2017

**Final Meeting:** Thursday May 25, 2017

**Location:** please contact instructor

**Course Head:** Max Nibert, [max\\_nibert@hms.harvard.edu](mailto:max_nibert@hms.harvard.edu)