

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

Quarter Courses

Fall Term 2014-2015

Study Card Days:

Held at the Harold Amos Graduate Student Lounge, TMEC Room 442

G3's and above: **Thursday, September 4**

G1's and G2's: **Friday, September 5**

Final day to turn in Study Cards to Cambridge in Dudley House: **Tuesday, September 9**

Add Course Deadline: Monday, October 20, 2014

Drop Course Deadline: Tuesday, October 28, 2014

Holidays:

Columbus Day: Monday, October 13

**Classes will be held on Veteran's Day

[Online Registration](#): August 18-27, 2014

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

DIVISION OF MEDICAL SCIENCES
Ph.D. Programs at Harvard Medical School
2014-2015 Fall Term Quarter Course Offerings

***BCMP 308qc. Cell Fate Decisions in Development and Disease**

Catalog Number: 21552 Enrollment: Limited to 12.

Alan B. Cantor (Medical School) 5150

***BCMP 311qc. Unmet Medical Needs and Translational Solutions - (New Course)**

Catalog Number: 41566

Jagesh V. Shah (Medical School) 5248 and members of the Medical School faculty

***Cell Biology 306qc. Teaching 100: The Theory and Science of Teaching**

Catalog Number: 62351 Enrollment: Limited to 15.

David L. Van Vactor (Medical School) 2089, Johanna L. Gutlerner

***HBTM 302qc. Imaging and Microscopy Methods in Biology and Medicine**

Catalog Number: 13534 Enrollment: Limited to 12.

Lev T. Perelman (Medical School) 6601, Le Qiu (Medical School), and Vladimir Turzhitsky (Medical School)

***Immunology 307qc. Cancer Immunology**

Catalog Number: 29695

Kai Wucherpennig (Medical School) 2481, Glenn Dranoff (Medical School), Stephanie Dougen (Medical School), and Michael Goldberg (Medical School)

***Medical Sciences 300qc. Conduct of Science**

Catalog Number: 47879

Raju Kucherlapati (Medical School) 4324

***Medical Sciences 302qc. Conduct of Science Refresher**

Catalog Number: 16457

Raju Kucherlapati (Medical School) 4324

***Neurobiology 301qc. Gene therapy for neurological diseases: Success stories**

Catalog Number: 18456 Enrollment: Limited to 12.

Bakhos A. Tannous (Medical School) 6863, Xandra O. Breakefield (Medical School) 1428, Casey A. Maguire (Medical School) 7357, and Luk Hugo Vandenberghe (Medical School) 7356

***Neurobiology 305qc. Biochemistry and Biology of Neurodegenerative Diseases**

Catalog Number: 22489 Enrollment: Limited to 20.

Dominic M. Walsh (Medical School) 7516 and Michael S. Wolfe (Medical School) 4543

***Neurobiology 306qc. Quantitative Methods for Biologists**

Catalog Number: 85319 Enrollment: Limited to 80.

Michael Springer and Richard T. Born (Medical School)

***Neurobiology 309qc. The molecular pathology and current therapies for retinal diseases**

Catalog Number: 42626

Dong Feng Chen (Associate professor, Neuroscience and Ophthalmology), Neena Haider (Associate Professor, Ophthalmology), Kin-Sang Cho (Instructor, Ophthalmology)

Biological Chemistry and Molecular Pharmacology

***BCMP 308qc. Cell Fate Decisions in Development and Disease**

Catalog Number: 21552 Enrollment: Limited to 12.

Alan B. Cantor (Medical School) 5150

Quarter course (fall term). W., 1:30-3:30.

This quarter course will offer students an in-depth examination of current knowledge regarding mechanisms of cell fate decisions. In addition, it will examine these processes in the context of developmental cell plasticity, cellular reprogramming, and cancer. This will primarily be a literature-based course, with examination and discussion of key studies in the field. Concepts involving epigenetics, chromatin remodeling, the instructive roles of transcription factors, transcription factor networks, transcription factor cross-antagonism, feedback loops, multilineage priming, non-coding RNAs, lineage identity maintenance, mitotic bookmarking, lateral inhibition, and cell signaling will be explored. These ideas will be examined in the context of blood, breast, lung, and gastrointestinal tract development.

Fall 2014

Meeting Dates: Wednesdays, September 24, October 1, 8, 15, 22, 29, November 5, 11, 19.

First Meeting: Tuesday, September 24, 1:30 P.M.

Final Meeting: Wednesday, November 19

Location: Karp Family Research Building, 11th floor conference room

Course Heads: Alan Cantor, alan.cantor@childrens.harvard.edu, (617) 919-2026

*****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27*****

***BCMP 311qc. Unmet Medical Needs and Translational Solutions - (New Course)**

Catalog Number: 41566

Jagesh V. Shah (Medical School) 5248 and members of the Medical School faculty

Quarter course (fall term). M. through F., 9–5.

The central goal of modern biomedical research is to understand the cause of human disease and to use this knowledge to develop approaches that lessen human suffering. The path from identifying an unmet medical need through the development of interventions that impact disease is a complex process demanding the best of medicine and science, strong project management, significant financial support, and persistence. In this course, students will learn to evaluate how unmet medical needs can be "translated" into new clinical practices. The course will feature assessment of unmet medical needs, case studies of successes and failures in translation, seminars from translational medicine experts, and workshops that engage students in substantive and intense discussions on current topics. Lecturers will include innovators who have successfully led the development of therapeutic interventions, leaders in basic science who have helped uncover the underlying causes of disease and investigators who have led clinical trials that lead to the approval of new interventions.

Note: This course will meet Mondays through Fridays, from Monday, July 7, 2014 to Friday, July 18, 2014.

July 2014**

First Meeting: Monday, July 7, 9:00 A.M.

Final Meeting: Friday, July 17

Location: TMEC 234

Class Size: May be limited

Course Heads: Jagesh Shah, Jagesh_Shah@hms.harvard.edu

Curriculum Fellow: Catherine Dubreuil, catherine_dubreuil@hms.harvard.edu

**** Please note: This course was offered in July 2014. If you wish to receive credit for this course, you must register for it on your fall study card between 8/18-8/27.**

Cell Biology

***Cell Biology 306qc. Teaching 100: The Theory and Science of Teaching**

Catalog Number: 62351 Enrollment: Limited to 15.

David L. Van Vactor (Medical School) 2089 and Johanna Gutlerner (Medical School) 7590

Quarter course (fall term). Th., 1–3:30.

For many graduate students, teaching will be part of their career, whether as mentoring, formal classroom teaching, or outreach. The Theory and Science of Teaching focuses on understanding why certain teaching methods are effective by examining the scientific research and theoretical frameworks that support these methods. We will read and discuss foundational educational and cognitive psychology texts and primary literature, and then develop an annotated lesson plan that allows us to put these ideas into practice.

Note: The course has been designed as a companion to Genetics 302qc: Teaching 101, but neither course is a prerequisite of the other.

Fall 2014

Meeting Dates: October 2, 9, 16, 23, 30; November 13, 20

**** Please note:** *There will be no class held on Thursday, November 6*

First Meeting: Thursday, October 2, 1:00 P.M.

Final Meeting: Thursday, November 20

Location: TMEC 445

Course Head: David L. Van Vactor

Teaching Instructor: Johanna Gutlerner, Johanna_gutlerner@hms.harvard.edu

****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27****

Human Biology and Translational Medicine

***HBTM 302qc. Imaging and Microscopy Methods in Biology and Medicine**

Catalog Number: 13534 Enrollment: Limited to 12.

Lev T. Perelman (Medical School) 6601, Le Qiu (Medical School), and Vladimir Turzhitsky (Medical School)

Quarter course (fall term). Th., 11-1.

Introduce modern imaging modalities with emphasis on modalities frequently employed in cellular, molecular biology and medicine. Overview of noninvasive medical imaging techniques frequently used in scientific research: X-ray CT, MRI, ultrasound, PET/SPECT and optical imaging.

Fall 2014

Meeting Dates: October 9, 16, 23, 30, November 6, 13, 20, December 4, 11

First Meeting: Thursday, October 9, 11:00 A.M.

Final Meeting: Thursday, December 11

Location: TME 446

Course Instructor: Lev Perelman, ltpere@bidmc.harvard.edu

*****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27*****

Immunology

***Immunology 307qc. Cancer Immunology**

Catalog Number: 29695

Kai Wucherpfennig (Medical School) 2481, Glenn Dranoff (Medical School), Stephanie Dougen (Medical School), and Michael Goldberg (Medical School)

Quarter course (fall term). M., 4–6.

There have been many exciting recent developments in the cancer immunology field, and multiple therapeutic approaches have shown efficacy against diverse types of cancer. This course will emphasize new mechanistic insights, in particular on the following topics: Mechanisms of spontaneous protective anti-tumor immunity; Key effector cell populations of anti-tumor immunity; Inflammation and tumor microenvironment; Immunosuppressive mechanisms in tumor immunity; Targeting of inhibitory receptors; Cancer vaccines; New approaches for delivery of immunotherapies into tumors.

Fall 2014

First Meeting: Monday, November 3, 4:00 P.M.

Final Meeting: Monday, December 15

Location: Modell Center, 2nd floor conference room, Room 100A

Course Instructor: Kai Wucherpfennig, Kai_Wucherpfennig@dfci.harvard.edu

*****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27*****

Medical Sciences

***Medical Sciences 300qc. Conduct of Science**

Catalog Number: 47879

Raju Kucherlapati (Medical School) 4324

Quarter course (fall term). Hours to be arranged .

Note: Restricted to GSAS graduate students on the Longwood campus.

Note: All current G2 students must register for this course on their Fall Semester 2014 study cards. Specific enrollment instructions will be sent to current G2s and other eligible students in the upcoming weeks.

Course Directors: Raju Kucherlapati (Medical School) 4324

***Medical Sciences 302qc. Conduct of Science Refresher**

Catalog Number: 16457

Raju Kucherlapati (Medical School) 4324

Quarter course (fall term). Hours to be arranged.

Note: Restricted to DMS graduate students.

Specific enrollment instructions will be sent to current eligible upper year students in the upcoming weeks

Course Directors: Raju Kucherlapati (Medical School) 4324

*****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27*****

Neurobiology

***Neurobiology 301qc. Gene therapy for neurological diseases: Success stories**

Catalog Number: 18456 Enrollment: Limited to 12.

Bakhos A. Tannous (Medical School) 6863, Xandra O. Breakefield (Medical School) 1428, Casey A. Maguire (Medical School) 7357, and Luk Hugo Vandenberghe (Medical School) 7356

Quarter course (fall term). Tu., 3–5.

Introduction to gene therapy and imaging techniques to monitor gene transfer and response to therapies. Discuss trends in gene therapy: viral vectors, siRNA and cell-based therapy, clinical trials and success stories for neurological diseases.

Fall 2014

First Meeting: Tuesday, September 2, 3:00 P.M.

Final Meeting: Tuesday, December 2

Location: TMEC 333

Course Instructor: Bakhos Tannous, btannous@hms.harvard.edu, (617) 726-6026

Co-Organizers: Xandra Breakefield, breakefield@hms.harvard.edu; Luk Vandenberghe, luk_vandenberghe@meei.harvard.edu; Casey Maguire, cmaguire@partners.org

*****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27*****

***Neurobiology 305qc. Biochemistry and Biology of Neurodegenerative Diseases**

Catalog Number: 22489 Enrollment: Limited to 20.

Dominic M. Walsh (Medical School) 7516 and Michael S. Wolfe (Medical School) 4543

Quarter course (fall term). M., 2-4.

Biochemistry and biology are integrated to provide a broad perspective on major human neurodegenerative diseases. The biochemistry, enzymology, structural biology and pathology of disease-associated proteins and approaches to developing therapeutics will be examined.

Note: Expected to be given in the second quarter of the fall term of 2014-2015.

Fall 2014

Meeting Dates: November 3, 10, 17, 24; December 1, 8, 15

First Meeting: Monday, November 3, 2:00 P.M.

Final Meeting: Monday, December 15

Location: NRB 730A

Course Instructor: Michael Wolfe, mwolfe@rics.bwh.harvard.edu; Dominic Walsh, dwalsh3@partners.org

*****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27*****

***Neurobiology 306qc. Quantitative Methods for Biologists**

Catalog Number: 85319 Enrollment: Limited to 80.

Michael Springer and Richard T. Born (Medical School)

Quarter course (fall term; repeated spring term). M., W., 9-5, Tu., Th., F., 1-5.

The goals of this course are to introduce students to programming in the MATLAB environment and to begin using this tool for analyzing data and for gaining intuition about the behavior of complex systems through the use of numerical simulations.

Note: This bootcamp course will meet in August.

August 2014

First Meeting: Monday, August 11, 9:00 A.M.

Final Meeting: Friday, August 22, 9:00 A.M.

Location: Maxwell Dworkin G115

Course Instructor: Michael Springer, Michael_Springer@hms.harvard.edu

Curriculum Fellow: Melanie Stefan, Melanie_Stefan@hms.harvard.edu

*****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27*****

***Neurobiology 309qc. The molecular pathology and current therapies for retinal diseases**

Catalog Number: 42626

Dong Feng Chen (Associate professor, Neuroscience and Ophthalmology), Neena Haider (Associate Professor, Ophthalmology), Kin-Sang Cho (Instructor, Ophthalmology)

Quarter course (fall term). Hours to be arranged.

Retinal diseases are major causes of irreversible blindness. A surge of progress resulting from studies in the disease mechanisms and the development of new imaging technology have led to a huge step forward in the therapies for diagnosing and treating retinal diseases and preventing blindness. This course will offer students an in-depth examination of current knowledge regarding retinal diseases, molecular pathology, and therapy, with an emphasis on recent breakthroughs and discussion of key studies in the field. The class consists of lectures and group discussions that focus on seminal papers selected from both the basic science and clinical ophthalmology, which will serve as a basis for teaching students basic concepts of ophthalmology and becoming familiar with animal models of retinal diseases. Each session will review the landmark publications on a particular topic or disease. As the retina has long served a standard model for studying the CNS, the class will foster discussion on the implications of these studies in other disease mechanisms and therapy.

Note: Offered in alternate years.

Fall 2014

First Meeting: Monday, September 29. Please contact the instructor for first meeting time.

Final Meeting: Monday, December 8

Location: Schepens Eye Research Institute (20 Staniford St), 2nd Floor Conference Room

Course Instructor: Dong Feng Chen, dfchen@vision.eri.harvard.edu

****If you plan to take a quarter course you must register for it on your study card between 8/18-8/27****