

REVISED

Quarter Courses
Fall Semester
2013

Fall Semester Begins on: Tuesday, September 3, 2013

Study Card Days: TMEC 442

G3's and up: Wednesday, September 4, 2013

G1's and G2's: Thursday, September 5, 2013

Final Day to turn in Study Cards in Cambridge:

Tuesday, September 10, 2013

Last day to Add Courses for Fall Semester: Monday, October 21, 2013

Last day to Drop Courses for Fall Semester: Tuesday, October 29, 2013

Holidays:

Columbus Day: Monday, October 14, 2013

***Classes held on Veteran's Day this year*



Tosteson Medical Education Center TMEC 435

260 Longwood Avenue,
Boston, MA 02115

For Information Call: 617-432-0162

Email: dms@hms.harvard.edu

Fall 2013 Quarter Courses

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

Catalog Number: 21552 Enrollment: Limited to 10.

Alan B. Cantor (Medical School)

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

***Cell Biology 305qc. Intracellular transport**

Catalog Number: 61228

Victor Hsu (Medical School) and invited faculty

Quarter course (fall term). W., 3-5.

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

Catalog Number: 62351 Enrollment: Limited to 15.

David L. Van Vactor (Medical School)

Course Instructor: Johanna L Gutlerner (Medical School)

Quarter course (fall term). Th., 2-4:30.

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

Catalog Number: 13534 Enrollment: Limited to 12.

Lev T. Perelman (Medical School)

Quarter course (fall term). T., 3-5.

***HBTM 303qc. Vision: A System and its Assessment (formerly Introduction to the Visual System)**

Catalog Number: 65449

Patricia A. D'Amore (Medical School) and Russell L. Woods (Medical School)

Quarter course (fall term). W., 3-5.

***Immunology 307qc. Tumor Immunology**

Catalog Number: 29695

Kai W. Wucherpfennig (Medical School), Glenn Dranoff (Medical School), Shannon Turley (Medical School), and Michael Goldberg (Medical School)

Quarter course (fall term). M., 4-6.

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

Catalog Number: 47879

Raju Kucherlapati (Medical School) 4324

Quarter course (fall term).

Mandatory course for DMS G2 students.

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

Catalog Number: 16457

Raju Kucherlapati (Medical School)

Quarter course (fall term).

***Neurobiology 301qc. Gene Therapy and Imaging for Nervous System Disorders**

Catalog Number: 18456 Enrollment: Limited to 12.

Bakhos A. Tannous (Medical School) 6863, Xandra O. Breakefield (Medical School) 1428,

Casey Maguire (Medical School) and Luk Vandenberghe (Medical School)

Quarter course (fall term). T., 3–5.

Quarter course (fall term). T., 3–5.

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

Catalog Number: 22489 Enrollment: Limited to 20.

Michael S. Wolfe (Medical School)

Quarter course (fall term). T., 3:30–5:30.

***Neurobiology 306qc. Quantitative Methods for Biologists - (*Incoming Students Boot Camp Course - Offered in August 2013*)**

Catalog Number: 85319 Enrollment: Limited to 80. Prior approval from course instructor needed.

Michael Springer, Richard T. Born (Medical School)

Quarter course (fall term; repeated spring term). 9- 5

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

Catalog Number: 21552 Enrollment: Limited to 10.

Alan B. Cantor (Medical School)

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 transcription factor networks, transcription factor cross-antagonism, feedback loops, lineage priming, lineage identity maintenance, mitotic bookmarking, epigenetics, Notch signaling, cytokine signaling, and microRNAs will be explored. These ideas will be examined in the context of a number of different tissue systems including blood, breast, lung, and gastrointestinal tract.

Tentative Outline of Sessions

1. Overview of cell fate decisions and role of lineage-specific transcription factors
2. Role of cell extrinsic factors such as niche/microenvironment.
3. Role of microRNAs in cell fate decisions
4. Concept of lineage priming
5. Feedback loops in stabilizing lineage decisions
6. Cell identity maintenance and mitotic bookmarking
7. Impaired cell fate commitments in cancer
8. Lineage plasticity and reprogramming

Meeting Dates: Wednesdays, September 18, 25, October 2, 9, 16, 23, 30, to November 6, 2013

Meeting Time: Wednesdays, 1:30- 3:30pm

Location: Children's Hospital; Karp Family Research Building, 7th floor Conference Room

Class Size: 10

Course Head: 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*****

REVISED – NOTE CHANGE IN MEETING DATES AND TIME

***Cell Biology 305qc. Intracellular transport**

Catalog Number: 61228

Victor Hsu (Medical School) and invited faculty

Quarter course (fall term). W., 3-5.

This course examines how proteins and membranes are sorted among different organellar compartments within the cell. This is a fundamental cellular process that underlies a wide spectrum of physiologic events, as well as pathogenic settings that underlie diseases. The ultimate goal is to provide a practical guide to understanding general mechanisms of intracellular transport and its role in key physiologic events

Session 1

Introductory Lecture

Session 2

Vesicle formation

Session 3

Vesicle translocation

Session 4

Vesicle docking and fusion

Session 5

Transport through tubules and organelle maturation

Session 6

Multivesicular bodies and exosomes

Session 7

Autophagy

Meeting Dates: Wednesday, October 30, November 6, 13, 20, December 4, 11, 18, 2013

Meeting Time: Wednesdays, 3:00-5:00 pm

Location: Smith Building (at the Dana Farber Cancer Institute), Room 546

Class Size: Limited to 10 students (to facilitate class discussions).

Course Director: Victor Hsu, vhsu@research.bwh.harvard.edu, (617) 525-1103

****If you plan to take a quarter course you must register for it on your study card****

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

Catalog Number: 62351 Enrollment: Limited to 15

David L. Van Vactor (Medical School)

Course Instructor: Johanna L Gutlerner (Medical School)

Quarter course (fall term). Th., 2-4:30.

For many students pursuing a PhD, teaching will be part of their future career, whether as informal mentoring, formal classroom teaching, or outreach. In addition the theory and research evidence accumulating in the disciplines of cognitive psychology, neuroscience, statistics, and the study of classroom methods has turned the question of, 'How do we best teach science?' into its own scientific discipline.

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 certain methods. We will practice those methods in the classroom to understand first-hand the predictions of these educational theories, and we will then read and discuss contemporary science education research aimed at testing whether the practice supports the theory. This course has been designed as a companion to Genetics 302qc, Teaching 101, but neither course is a prerequisite of the other.

Course Instructor, Johanna L. Gutlerner

Schedule/Topics

- The nature of knowledge
 - constructivism, scaffolding, and the importance prior knowledge and misconceptions
 - writing effective questions to identify student's prior knowledge and misconceptions
- Memory and retention
- Attention and motivation
- Metacognition
- Rational lesson planning
- Teachers' ideas about students and adult development

<http://isites.harvard.edu/k90705->

Meeting dates: Thursdays, October 3 – November 21, 2013

Time: Thursday 2:00 – 4:30

Location: TMEC Building, Room 338

Class size: 15

Director: Davie Van Vactor, davie_vanvactor@hms.harvard.edu

Course 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****

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

Catalog Number: 13534 Enrollment: Limited to 12.

Lev T. Perelman (Medical School) and Le Qiu (Medical School)

Quarter course (fall term). T., 3–5.

This quarter course will introduce students to modern imaging modalities with an emphasis on modalities most frequently employed in cellular and molecular biology as well as medicine. The course will offer an overview of noninvasive medical imaging techniques frequently used in scientific research, such as X-ray CT, MRI, ultrasound, PET/SPECT and optical imaging and spectroscopy. We will also cover basic principles of electron and light microscopy, including fluorescence and confocal and their theory of operation and advanced microscopy techniques, such as two-photon, CLASS, super-resolution and STED microscopy. Focus here will be placed on molecular imaging approaches and application of modality-specific and functionally relevant molecular probes. Lectures will be supplemented by visual and hands-on demonstrations of the imaging systems and discussions of the operation principles of these systems.

Schedule:

Day 1: Overview of Imaging in Biology and Medicine.

Day 2: Tomography Modalities: X-ray CT and MRI. Contrast Agents.

Day 3: Principles of PET and SPECT. Ultrasound Imaging.

Day 4: Optical Molecular Imaging, OCT and Diffuse Optical Tomography.

Day 5: Optical Spectroscopy: Absorption, Light Scattering, Fluorescence, Raman.

Day 6: Electron Microscopy and Light Microscopy. Basic Principles of Light Microscopy: Resolution, Phase Contrast, Nomarski.

Day 7: Fluorescence Microscopy: Filters, Immunostaining, Dyes. Confocal Microscopy: Pinhole, 3-D Projection.

Day 8: Modality-Specific Molecular Probes, Live Cell Imaging, FRAP, Deconvolution, Colocalization.

Day 9: Advanced Microscopy Techniques: Two-Photon, CLASS, Super-Resolution, STED

Meeting Dates: Tuesdays from October 22, 2013 to December 17, 2013

Time: Tuesdays, 3-5 pm

Location: TMEC Building, Room L-007

Class Size: up to 12 students

Course Head: Lev Perelman, lperel@bidmc.harvard.edu

****If you plan to take a quarter course you must register for it on your study card****

***HBTM 303qc. Vision: A System and its Assessment (formerly Introduction to the Visual System)**

Catalog Number: 65449

Patricia A. D'Amore (Medical School) and Russell L. Woods (Medical School)
Quarter course (fall term). W., 3–5.

This course provides an introduction to the visual system and its assessment. In general, we will consider vision as a system rather than its low-level components. Each two-hour session consists of two lectures provided by faculty with expertise in that area. Topics will include basic science and clinical topics, normal vision and abnormal vision, methods of assessment of animals and humans, clinical and laboratory measures.

Dates and Topics:

Wednesday, Sept. 4, 2013	3pm	<i>Optics of the Eye and Retinal Imaging</i> , Francois C Delori, PhD, Schepens Eye Research Institute;
	4pm	<i>Electrophysiology of Vision</i> , Michael A Sandberg PhD, Massachusetts Eye and Ear Infirmary
Wednesday, Sept. 11, 2013	3pm	<i>Visual Pathways</i> , Lotfi B Merabet MPH OD PhD, Massachusetts Eye and Ear Infirmary;
	4pm	<i>Brain Imaging</i> , Lotfi B Merabet MPH OD PhD, Massachusetts Eye and Ear Infirmary
Wednesday, Sept. 18, 2013	3pm	<i>Eye Movements</i> , Gang Luo PhD, Schepens Eye Research Institute;
	4pm	<i>Binocular Vision, Depth Perception and Accommodation</i> , Kevin Houston OD, Massachusetts Eye and Ear Infirmary and Schepens Eye Research Institute
Wednesday, Oct. 2, 2013	3pm	<i>Color Vision</i> , Jason I Comander, MD PhD, Massachusetts Eye and Ear Infirmary;
	4pm	<i>Visual Psychophysics 1</i> , Russell L Woods PhD, Schepens Eye Research Institute
Wednesday, Oct. 9, 2013	3pm	<i>Behavioral Methods with Animals</i> , Daniel R Saunders PhD, Schepens Eye Research Institute;
	4pm	<i>Visual Psychophysics 2</i> , Russell L Woods PhD, Schepens Eye Research Institute
Wednesday, Oct. 16, 2013	3pm	<i>Visual Function Measurement</i> , Luis A Lesmes PhD, Schepens Eye Research Institute;
	4pm	<i>Visual Perception 1</i> , Peter J Bex, PhD, Schepens Eye Research Institute
Wednesday, Oct. 30, 2013	3pm	<i>Functional Vision</i> , Alex R Bowers, PhD, Schepens Eye Research Institute;
	4pm	<i>Visual Perception 2</i> , Andrew Haun, PhD, Schepens Eye Research Institute

Wednesday, Nov. 6, 2013	3pm 4pm	<i>Children's Vision</i> , Anne B Fulton MD, Children's Hospital Boston; <i>The Aging Eye</i> , Laura C Fine, MD, Ophthalmic Consultants of Boston
Wednesday, Nov. 13, 2013	3pm 4pm	<i>Qualitative Assessments of Vision</i> , Debra A. Schaumberg, ScD, OD, MPH, Brigham and Women's Hospital; <i>Vision Rehabilitation</i> , Mary Lou Jackson, MD, Massachusetts Eye and Ear Infirmary

Meeting Dates: Wednesdays, September 4, 11, 18, October 2, 9, 16, 30, November 6, 13

Meeting Time: Wednesdays, 3:00 - 5:00pm

Location: 2nd floor Conference Room, Schepens Eye Research Institute, Room 219 (Media Room), 20 Staniford Street, Boston 02114

Course Heads: Patricia A. D'Amore, Patricia_D'Amore@meei.harvard.edu, (617) 912-2559
and Russell L Woods, russell_woods@meei.harvard.edu, (617) 912-2589

Course Coordinator: Tyler Kirsch, tyler_kirsch@meei.harvard.edu, (617) 912-2501

****If you plan to take a quarter course you must register for it on your study card****

***Immunology 307qc. Tumor Immunology**

Catalog Number: 29695

Kai W. Wucherpfennig (Medical School), Glenn Dranoff (Medical School), Shannon Turley (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:

1. Mechanisms of spontaneous protective anti-tumor immunity
2. Key effector cell populations of anti-tumor immunity
3. Inflammation and tumor microenvironment
4. Immunosuppressive mechanisms in tumor immunity
5. Targeting of inhibitory receptors
6. Cancer vaccines
7. New approaches for delivery of immunotherapies into tumors

Assignments

For each of the seven sessions, students are required to read 1-2 reviews as well as 3 primary papers that will be discussed in class. Assessments will be based on contributions to group discussions.

Fall 2013

Meeting Dates: From Monday November 4 to December 16, 2013

Meeting Time: Mondays, 4:00-6:00pm

Location: Modell Center, 2nd floor Conference Room, Room **258**.

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

Medical Sciences 300qc. Conduct of Science

Catalog Number: 47879

*Course Directors: Raju Kucherlapati (Medical School) 4324 and Thomas Fox
Quarter course (fall term). Hours to be arranged .*

Training in the responsible conduct of science is a required part of the PhD program in the Division of Medical Sciences. Not only is such training a necessary element in the academic development of everyone who will become a responsible member of the scientific community, it is also mandated by the National Institutes of Health.

Discussion-based course covering topics on aspects of responsible conduct of research and the ethical and moral principles that underlies research. There will be three mandatory didactic sessions that all students and faculty involved in the course will be required to attend. In addition to these three sessions, the course will break into small groups for five sessions. DMS will organize the participants for each group based on faculty and student schedules as submitted.

Each group will have a faculty member who will stimulate and moderate group discussions. Some groups may have senior graduate student or a post-doc who has taken the course in the past and would like to participate in the sessions again this year. Discussion groups will be composed of 8-10 students.

Didactic Session Topics:Session One: Grants; Sources of Funding and Management of GroupsSession Two: Institutional Review Boards with Emphasis on the Welfare of Animals in ResearchSession Three: General Principles of Bioethics in Research**Discussion Group Session Topics (To be Determined)**

Note: All current G2 students must register for this course on their Fall Semester 2013 study cards. Specific enrollment instructions will be sent to current G2s and other eligible students in the upcoming weeks.

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

Catalog Number: 16457

Raju Kucherlapati (Medical School)

Quarter course (spring term).

For upper year DMS students currently on fellowships. Restricted to DMS graduate students only.

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

Course Directors: Raju Kucherlapati (Medical School) 4324 and Thomas Fox

***Neurobiology 301qc. Gene Therapy and Imaging for Nervous System Disorders -**

Catalog Number: 18456 Enrollment: Limited to 12.

Teaching Faculty names have been revised

Bakhos A. Tannous (Medical School) 6863, Xandra O. Breakefield (Medical School) 1428, Casey Maguire (Medical School) and Luk Vandenberghe (Medical School)
 Quarter course (fall term). T., 3–5.

This quarter course will offer students an introduction to gene therapy, as well as different techniques in molecular imaging used to monitor gene transfer and the response to therapy. We will discuss current trends in gene therapy including viral vectors, siRNA and cell-based therapy, as well as ongoing clinical trials for several central nervous system (CNS) disorders. Each session will be 2 hrs with a faculty member lecturing for 1 hr on the topic followed by group discussion or student presentations of relevant publications. Students will be responsible for reading and critically discussing relevant papers each week. Class participation is required and enrollment is limited to 12 students.

Proposed Sessions:

- Overview of gene therapy methods
- Overview of non-invasive imaging techniques
- Parkinson's disease
- Alzheimer's disease
- Brain tumors
- Lysosomal storage diseases
- Adrenoleucodystrophy (ALD)
- Amyotrophic lateral sclerosis (ALS)
- Retinal diseases

Meeting Dates: Tuesdays from September 3 to October 29, 2013

Meeting Time: Tuesdays 3-5pm

Location: TMEC Building, Room L-008

Class Size: 15

Course Head: 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****

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

Catalog Number: 22489 Enrollment: Limited to 20.

Michael S. Wolfe (Medical School)

Quarter course (fall term). T., 3:30–5:30.

The abnormal processing, folding and assembly of proteins are linked to an increasing number of neurodegenerative diseases. This course integrates biochemistry and biology, to provide a broad perspective on neurodegeneration. We will examine the chemistry, biochemistry, enzymology, and structural biology of proteins involved in neurodegeneration. In addition, we will explore aberrant metabolism of disease-associated proteins and address aspects of the etiology, pathology, diagnosis, and treatment of selected neurodegenerative diseases, including Alzheimer's, Huntington's, Parkinson's, motor neuron disease, and prion diseases. The course is thus appropriate for students in the Neuroscience and BBS programs, as well as for others with interests in the area. Each session will begin with a brief introduction to the topic, followed by critical analysis and discussion of key publications.

Planned sessions:

1. Introduction to neurodegenerative diseases and common themes
2. Alzheimer's disease (esp. amyloid)
3. Alzheimer's disease and frontotemporal dementia (esp. tau)
4. Frontotemporal dementia and motor neuron disease (esp. TDP-43)
5. Parkinson's disease
6. Polyglutamine disorders
7. Prion diseases

Course Format:

The weekly 2 hours sessions will focus on the recent literature on the molecular basis of neurodegenerative diseases. Review articles will be provided as background for seminal primary research articles in the field. These articles will be sent as pdfs one week beforehand, along with a list of questions for discussion. The questions will set a framework for a more interactive atmosphere. Some lecture-style introduction and background will be provided, but the hope is that students will participate in in-depth discussions on the primary research articles. General questions are

- Why is this area of research important?
- What questions did the researchers hope to answer?
- How were the experiments designed, and what were the results?
- How were these results interpreted?
- Are other interpretations possible?
- What new questions arise from these studies (e.g., what follow-up studies would you do?)

The grading format of the class is pass/fail. There will be no tests and no written reports required. Therefore, participation in class discussion is the sole determinant of passing or failing.

Meeting Dates: Tuesdays, November 5, 12, 19, 26 and December 3, 10 and 17.

Meeting Time: Tuesdays 3:30-5:30 PM

Location: H.I.M building, Room 680

Class Size: 20

Course Head: Michael Wolfe, mwolfe@rics.bwh.harvard.edu

*****If you plan to take a quarter course you must register for it on your study card*****

***Neurobiology 306qc. Quantitative Methods for Biologists - [\(Incoming Students Boot Camp Course- Offered in August 2013 \)](#)**

Catalog Number: 85319 Enrollment: Limited to 80. Prior approval from course instructor needed.

Michael Springer, Richard T. Born (Medical School)

Quarter course (fall term; repeated spring term). 9- 5; See all days/times below

The goals of this camp are to introduce you to programming in the MATLAB environment and to show you the power this provides for analyzing data and for gaining intuition about the behavior of complex systems through the use of numerical simulations. Some of you, upon encountering in the previous sentence words like "programming" and "numerical simulations," will feel the cold hand of fear grip your stomach, because you have never done any programming and, in fact, have tried to avoid math as much as possible. If so, YOU ARE PRECISELY THE PERSON WE HAD IN MIND as we were planning the course. We are aiming to help you break through this barrier of darkness and fear into the radiant sunshine of quantitative enlightenment. The true beauty of MATLAB, as we will personally demonstrate, is that it allows people who are not mathematically adept (e.g. some of the instructors of this course) to use powerful numerical methods and visualization tools to gain an understanding of concepts that are very difficult to grasp analytically.

While this course is geared for students with no previous programming experience, we will cover a range of topics that will be useful for people with stronger programming backgrounds. Every exercise will have a range of components – including components that can be mastered by students with minimal programming, as well as advanced components for students with stronger backgrounds who want to dig a bit deeper. Furthermore, advanced students can explore MATLAB and quantitative approaches for analyzing biological problems through independent and TA-guided exercises.

The first two days of the course will cover basics of programming intermixed with some image analysis and statistical methods for analyzing data. The third day will focus on statistics; the fourth on image analysis. The fifth day will focus on loading real data and bioinformatics.

The course assumes no knowledge of programming, statistics, bioinformatics, or image analysis. The goal is to give people a set of practical tools that they can use towards any problem they want to address and to go through examples that both reinforce the different programming concepts and give hands-on examples of data processing.

The longer-term goal of the course is to integrate the new quantitative skills you will obtain into your scientific toolbox. In this spirit, you should think of the boot camp as the start of a beautiful relationship—one that will continue throughout your coursework and follow you into your dissertation labs. We are working to integrate MATLAB-based demonstrations and problems into the core curriculum (a process that will happen more quickly for some of the graduate programs than for others).

There are two optional days between the first and second day of the course and again between the second and third day of the course. These optional sessions are aimed at the true novices to help give the extra practice and small group time often needed when learning something completely new.

There will be ample breaks throughout and a longer lunch break.

If you desire, you can receive course credit for this boot camp, which is listed as Neurobiology 306qc by formally registering for it during the registration period at the end of August.

Please register here: https://hms.qualtrics.com/SE/?SID=SV_3CPJ8IRTK2wEROB. If you have additional questions, email SysBio.Courses@hms.harvard.edu.

Meeting Dates and times:

All the days will include plenty of break time.

Wednesday, 8/14: 9am -5pm

Thursday, 8/15: 11:30am -5pm *optional review*

Friday, 8/16: 9am -5pm

Monday, 8/19: 1pm -5pm *optional review*

Tuesday, 8/20: 9am -5pm

Thursday, 8/22: 9am -5pm

Friday, 8/23 9am -5pm

Location: Harvard University, Maxwell Dworkin Lab, Room G115 (Address: 33 Oxford Street, Cambridge MA)

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

Course website: <http://springerlab.org/qmbc/>

Please register here: https://hms.qualtrics.com/SE/?SID=SV_3CPJ8IRTK2wEROB. If you have additional questions, email SysBio.Courses@hms.harvard.edu.

****If you plan to take a quarter course you must register for it on your study card****