Spring 2023
Quarter Courses

Referred to as "Half Term" in GSAS Academic Calendar

Spring Session 1 (Half-Term QC's): 1/23/23 – 3/10/23
Spring Session 2 (Half-Term QC's): 3/20/23 – 4/26/23

ENROLLMENT DEADLINES

Check-in Opens	**Jan. 4**
Check-in DDline	**Jan. 11**
Spring 1 Course Reg. Deadline	**Jan. 19**
Spring 1 Begins	**Jan. 23**
Spring 1 Add/Drop Deadline (no fee)	**Feb. 9**
Spring 1 Classes End	**Mar. 10**
Spring 2 Begins	**Mar. 20**
Spring 2 Course Reg. Deadline	**Mar. 24**
Spring 2 Add/Drop Deadline	**Apr. 6**
Spring 2 Classes End	**Apr. 26**

GSAS ACADEMIC CALENDAR

https://registrar.fas.harvard.edu/calendars

REMINDERS

You **cannot register** for courses until you CHECK-IN (or go to: https://registrar.fas.harvard.edu/check-in)

Register for **16 credits** for full-time student status and health insurance eligibility– **DEADLINE March 6**

Register by going to https://my.harvard.edu/

For questions, contact: dms_courses@hms.harvard.edu

CELLBIO 302QC Advanced Experimental Design for Biologists
David Glass, Randall King, Catherine Dubreuil

CELLBIO 314QC The Science of Mindfulness
Neena Haider

GENETIC 302QC Teaching 101: Bringing Effective Teaching Practices to your Classroom
Esther Brandon, Chris Magnano

IMMUN 301QC Autoimmunity
Francisco Quintana

IMMUN 305QC Neuroimmune interactions in health and disease
Isaac Chiu, Jun Huh

IMMUN 306QC Systems Immunology
Nir Hacohen, Christophe Benoist, Martin Hemberg

MICROBI 360QC The Human Microbiome: Comprehensive Experimental Design & Methodologies
Aleksandar Kostic, Abigail Sloan Devlin

SHBT 361QC Artificial Intelligence in Medicine
Mengyu Wang, Tobias Elze

Cell Biology

CELLBIO 302QC Advanced Experimental Design for Biologists

David Glass, Randall King, Catherine Dubreuil

2 units. Enrollment limited to 24. Instructor consent required.
Spring 1 QC

T., 6:00pm – 8:00pm
Meeting dates: Jan 31 – Mar 14
Meeting Location: Tosteson Medical Education Ctr. (TMEC), Rm. 106

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.

Course Note: Special consent required - preference given to Therapeutics Certificate Program students.

Course Head: David Glass, david_glass@hms.harvard.edu
Other Instructors: Randy King, randy_king@hms.harvard.edu, Catherine Dubreuil, catherine_dubreuil@hms.harvard.edu

CELLBIO 314QC The Science of Mindfulness: A research-based approach to understanding and practicing mindfulness

Neena Haider

2 units.
Spring 1 QC

W/F, 9:00am – 10:00am
Meeting Dates: Feb 2 – Mar 11
Meeting Location: Tosteson Medical Education Ctr. (TMEC), Rm. 448

This course delves into the science behind mindfulness using a research- based approach to understand the impact of mindfulness on the mind and body. The course will include a discussion of published work as well as practical applications in a workshop format. Topics include power of breath, positive thinking, and impact of mindfulness on cognitive function. Workshop portions will include guided breath and guided meditation and learning how to focus the mind, and learn observation without judgment.

Course Heads: Neena Haider, Neena_Haider@MEEI.HARVARD.EDU

Genetics

GENETIC 302QC Teaching 101: Bringing Effective Teaching Practices to your Classroom

Esther Brandon, Chris Magnano

2 units. Enrollment limited to 20. Instructor consent required.
Spring 1 QC

TH., 2:00pm – 4:00pm
Meeting Dates: Jan 26 – Mar 30
Meeting Location: Tosteson Medical Education Ctr. (TMEC), Rm. 330

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

Course learning objectives:
By the end of this course, participants will be able to:

- Who are your learners: Describe your learners and define their needs
- Identify instructional goals: Describe strategies for cultivating course climates that are student-centered and inclusive
- Map the educational experience: Create assessments, in-class activities, and instructional methods that align with course objectives
- Peer-to-peer Instructional Opportunity: Facilitate discussions and other learning activities in small- or large-group contexts
- Assess and revise: Develop metacognitive skills to utilize constructive feedback from peers and instructors to improve teaching effectiveness
- Incorporate technology and active learning models into your teaching

Class Note: In addition to the live sessions, each week will require 1-2 hours of asynchronous classwork which may include written or recorded work to be submitted on Canvas prior to the live session.

Recommend Prep: This course is complementary to CELLBIO 306qc: Teaching 100, but neither

course is a prerequisite for the other. Postdocs and other Harvard affiliates who are not current students may be allowed to audit as space allows. Please contact the instructors to request permission to audit.

Course Heads: Esther Brandon, esther@hms.harvard.edu, Chris Magnano, Christopher_Magnano@hms.harvard.edu, Johanna Gutlerner, johanna_gutlerner@hms.harvard.edu

Immunology

MMUN 301QC Autoimmunity

Francisco Quintana

2 units.
Spring 2QC

M., 4:00pm – 6:00pm
Meeting Dates: Feb 6 – May 22
Meeting Location: Modell Ctr., Rm 258

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.

Course Head: Francisco Quintana, franquin@broadinstitute.org

IMMUN 305QC Neuroimmune interactions in health and disease

Isaac Chiu, Jun Huh

2 units.
Spring 2QC

T., 4:00pm – 6:00pm
Meeting Dates: Mar 21 – May 9
Meeting Location: Armenise, Modell 100A

It is increasingly clear that communication between the nervous system and the immune system plays a significant role in homeostasis and disease. This course will investigate current topics in neuro-immunology such as: Gut-brain axis, neuron-glia interactions, brain border tissues, CNS development, pain, itch, neurodegeneration, allergy, autoimmunity, and host defense. Neurons and immune cells crosstalk within the central nervous system and in peripheral tissues, mediating homeostasis, barrier protection, and host defense. Dysregulation in neuroimmune communication underlies both neurological and immunological diseases. Guest lecturers will give seminars on each topic in neuroimmunology, followed by class discussion on papers in the field.

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

Course Heads: Isaac Chiu, isaac_chiu@hms.harvard.edu, Jun Huh, jun_huh@hms.harvard.edu

IMMUN 306QC Systems Immunology

Nir Hacohen, Christophe Benoist, Martin Hemberg

2 units. Instructor consent required.
Spring 2 QC

F., 10:00am – 3:00pm
Meeting Dates: Feb 3 – Apr 28
Lecture/Discussion: 10:00am – 12:00pm
Meeting Location: Tosteson Medical Education Ctr. (TMEC), Rm. L-008
Hands-on Computational Workshop: 1:00pm – 3:00pm
Meeting Location: Armenise, Modell 100A *(locations vary for 2/3, 3/3 and 4/3 – instructor to provide information)*

The focus in this course is on the emerging area of systems immunology. We will learn how leading-edge approaches in genetics, transcriptomics, epigenomics, proteomics, genetic perturbation screens, T/B repertoires, microbiomes, and tissue architecture can be used to understand immune cell types and states, intracellular and intercellular circuits underlying immunity, and mechanisms of immune diseases. Classes will consist of pre-recorded lectures, live sessions to discuss leading-edge studies, followed by a companion workshop for hands-on computational analysis of data related to key topics.

Course Heads: Nir Hacohen, nhacohen@mgh.harvard.edu, Christophe Benoist, cb@hms.harvard.edu, Martin Hemberg, mhemberg@bwh.harvard.edu

Microbiology & Immunobiology

MICROBI 360QC The Human Microbiome: Comprehensive Experimental Design and Methodologies

Aleksandar Kostic, Abigail Sloan Devlin

2 units.
Spring 1 QC

M/W, 1:00pm - 2:30pm
Meeting Dates: Jan 23 – Mar 2
Meeting Location: Folin Wu Room (C-137), C Building

This is a comprehensive introduction to the study of human microbial communities and their functions relevant to human physiology. Topics covered include metagenomics, mechanistic interactions of the microbiome with metabolism, the immune system, and the gut-brain axis. Rather than lectures, this course is primarily a critical discussion of the literature.

Course Heads: Aleksandar Kostic, aleksandar.kostic@joslin.harvard.edu, Sloan Devlin, sloan_devlin@hms.harvard.edu

Speech & Hearing Sciences

SHBT 361QC Artificial Intelligence in Medicine

Mengyu Wang, Tobias Elze

2 units.

T., 1:00pm – 3:00pm
Meeting Dates: Jan 24 – Apr 25
Meeting Location: Schepens Eye Research Institute, 20 Staniford Street, Boston, MA 02114; Room: Second Floor Conference Room

This course offered at Schepens Eye Research Institute will serve as an introduction to artificial intelligence (AI) with an emphasis on their applications in medicine. The course will start from classical linear and non-linear regression models, and then move to classical machine learning models including matrix decomposition methods, random forest, support vector machine and traditional neural network based on multilayer perceptron and finally dive into latest deep neural networks such as convolutional neural networks and transformers. The class will be taught with homework in the form of six mini projects and one final project mainly using medical imaging data along with other medical tests and diagnostic information. We will have three special sessions as the last three classes to overview latest developments on common medical AI modeling topics including segmentation, few-shot learning and anomaly detection.

Course Notes: The prospective students should be familiar with at least one programming language such as MATLAB, R or Python.

Course Heads: Mengyu Wang, Mengyu_Wang@meei.harvard.edu, Tobias Elze, Tobias_Elze@MEEI.HARVARD.EDU
Other Instructors: Mohammad Eslami; Saber Kazeminasab; Yan Luo; Min Shi; Yu Tian