EPIDEMIOLOGY & MOLECULAR PATHOLOGY OF CANCER
2020 Course Syllabus

COURSE INFORMATION

Course code: CB301qc

Term: J-Term

Course Dates: January 6, 2020 – January 15, 2020

Course Times: 9:00am – 5:00pm, unless otherwise specified (see below)

Location Details:

- **Lectures** – TMEC 302 (unless otherwise specified)
- **Lunches** – TMEC 212
- **Mouse Dissection** – Jimmy Fund 604
- **Mouse Pathology Core** – Goldenson Building, 126-141
- **Histopathology Core** – BWH Thorn Building 604/603b
- **Case studies** – BWH Pathology
- **Student presentations** – TMEC 151
- **Reception** – TMEC 128

Course Directors:

- Massimo Loda, MD (mloda@med.cornell.edu)
- Kathryn Penney, ScD (Kpenney@hsph.harvard.edu)

Curriculum Fellow & Course Contact:

- Jelena Patrnogic, PhD (jelena_patrnogic@hms.harvard.edu)

Course Website: add canvas page

Course Description: This January course will provide students with an in-depth introduction to the epidemiology and molecular pathology of cancer. We will explore multiple types of cancer, including breast, colon, lung, prostate and brain, through a series of lectures and hands-on practice tutorials. These tutorials will include training in molecular pathology techniques, state of the art image analysis of human biomarkers, tissue processing, immunohistochemistry, and tumor histology. In addition, the epidemiology, genetics and relevant signal transduction pathways of cancer will be highlighted.

Important Notes:
- The first class is on Monday, January 6, 2020.
- Ask questions! Take advantage of the small class size to get all of your questions answered.
- As the classes take up a full day for the duration of the bootcamp, we recommended that you do not pursue your own independent lab work during the seven days of this course.
- You will be graded on a pass/fail basis. Your grade will be determined by your attendance, participation, and your level of preparation. Attendance at all sessions is mandatory.
- Each day will begin at 9:00am, unless otherwise stated. You are expected to be on time to each session.
- Supportive readings will be listed and posted on the course website. Slides, when made available, will be posted to the course website.

Suggested readings:

Pathology and Epidemiology of Cancer (2017)

Editors – Massimo Loda, Lorelei A. Mucci, Megan L. Mittelstadt, Mieke Van Hemelrijck, Maura Bríd Cotter

Day One – Monday – January 6, 2020

Time	Session	Instructor
9:00am – 9:30am	Introduction to the Course	
9:30am – 11:00am	Introduction to Histology and Pathology	*Massimo Loda, MD*
11:00am – 12:00pm	Introduction to Epidemiology	*Kathryn Penney, ScD*
12:00pm – 1:00pm	Lunch	
1:00pm – 1:30pm	Group projects explanation and assignments	
1:30pm – 2:30pm	Mouse Models of Cancer	*Katherine Morel, PhD* *Deborah Burkhart, PhD* *Ellis lab*
2:30pm – 4:30pm	Mouse dissection **Jimmy Fund 604**	*Katherine Morel, PhD* *Deborah Burkhart, PhD* *Ellis lab*

Day Two – Tuesday – January 7, 2020

9:30am – 10:30am	Epidemiology of Prostate Cancer	**Kathryn Penney, ScD**
10:30am – 12:00pm	Pathology and Molecular Pathology of Prostate Cancer	**Massimo Loda, MD**
12:00pm – 1:00pm	Lunch	
1:00pm – 3:00pm	Slide Visualization – Prostate Cancer Pathology	**Massimo Loda, MD**
3:00pm – 5:00pm	Mouse Pathology Core	**Rod Bronson, DVM**
	Goldenson Building, 126-141	

Day Three – Wednesday – January 8, 2020

9:00am – 10:00am	Cytogenetics	**Adrian Dubuc, PhD**
10:00am – 11:00am	Immunotherapy	**Stephen Hodi, MD**
11:00am – 12:00pm	Students work on presentations	
12:00pm – 1:00pm	Lunch	
1:00pm – 4:00pm	Histopathology Core - Tissue processing, embedding, sectioning, staining	**Jon Aster, MD, PhD**
	BWH 604/603b	
4:00pm – 5:00pm	Pathology and Molecular Pathology of Melanoma	**David Fisher, MD, PhD**
	TMEC 340	

Day Four – Thursday – January 9, 2020

9:00am – 10:30am	Epidemiology and Pathology of Breast Cancer	**Rulla Tamimi, ScD**
10:30am – 11:30am	Pathology and Molecular Pathology of Ovarian Cancer	**Sarah Hill, MD, PhD**
11:30am – 12:30pm	Epidemiology of Melanoma	**Alan Geller, MPH, RN**
12:30pm – 1:30pm	Lunch	
1:30pm – 4:30pm	Histopathology Core - Immunohistochemistry and Digital imaging analysis	**Jon Aster, MD, PhD**
	BWH 604/603b	

Day Five – Friday – January 10, 2020

10:00am – 11:00am	Epidemiology of Lung Cancer	**Eric Garshick, MD**
11:00am – 12:00pm	Pathology and Molecular Pathology of Lung Cancer	**Lynette Sholl, MD**
12:00pm – 1:00pm	Slide Visualization – Lung Cancer Pathology	**Lynette Sholl, MD**
1:00pm – 2:00pm	Lunch	
2:00pm – 3:00pm	Students work on presentations	
3:00pm – 4:00pm	Pathology of Brain Cancer	**Keith Ligon, MD, PhD**

Day Six – Monday – January 13, 2020

9:00am – 10:30am	Hematopathology	*Scott Rodig, MD, PhD*
10:30am – 11:00am	Briefing for Cases	*Ryan Lee, PhD*
11:00am – 12:00pm	Epidemiology of Colorectal Cancer	*Mingyang Song, MD, ScD*
12:00 – 1:00pm	Lunch	
1:00pm – 5:00pm	Walk-through Case Studies	*Ryan Lee, PhD,*
	BWH Pathology	*Vignesh Shanmugam, MD, Phd Kyle Wright, MD, PhD*

Day Seven – Tuesday – January 14, 2020

10:00am – 11:00am	Pathology and Molecular Pathology of Pancreatic Cancer	*Jason Hornick, MD, PhD*
11:00am – 12:15pm	Case Study in Pathology: Pancreatic Cancer Models	*Nabeel El-Bardeesy, PhD*
12:15 – 1:15pm	Lunch	
1:15pm – 5:00pm	Walk-through Case Studies	*Ryan Lee, PhD,*
	BWH Pathology	*Vignesh Shanmugam, MD, PhD Kyle Wright, MD, PhD*

Day Eight – Wednesday – January 15, 2020

9:00am – 10:00am	Intro to Neurooncologic Pathology in the Molecular Era	
10:00am – 11:00pm	Machine Learning in Neuropathology	*Ben Liechty, MD*
11:00am – 12:00pm	Interactive Slide Session	
12:00pm – 1:00pm	Lunch	
1:30pm – 2:30pm	Pathology and Molecular and Pathology of Colorectal Cancer	*Kevin Haigis, PhD*
2:30pm – 4:00pm	Student Presentations	
	TMEC 151	
	12-minute presentations+3-minutes Q/A on the epidemiology and molecular pathology of cancers not presented in course lectures	
4:00pm – 5:00pm	Wrap up and Reception	
	TMEC 128	

Academic Integrity

All work in this course is governed by the academic integrity policies of GSAS [Academic Integrity](#) and HMS [Academic Dishonesty and Plagiarism](#).It is the students' responsibility to be aware of these policies and to ensure that their work adheres to them both in detail and in spirit. Unless otherwise specified by the instructor, the assumption is that all work submitted must reflect the student's own effort and understanding. Students are expected to clearly distinguish their own ideas and knowledge from information derived from other sources, including from collaboration with other people. If you have a question about how best to complete an assignment in light of these policies, ask the instructor for clarification.

Reasonable Accommodations

As an institution that values diversity and inclusion, our goal is to create learning environments that are usable, equitable, inclusive and welcoming. Harvard University complies with federal legislation for individuals with disabilities and offers reasonable accommodations to qualified students with documented disabilities and temporary impairments. To make a request for reasonable accommodations in a course, students must first connect with their local disability office. The primary point of contact for GSAS students is [Accessible Education Office](#). The HMS Director of Disability Services, Timothy Rogers (timothy_rogers@hms.harvard.edu) is another potential source of accommodation information for PhD students and is the primary contact for MD and master's students.

Accommodations are determined through an interactive process and are not retroactive. Therefore, students should contact their local disability office as soon as possible, preferably at least two weeks before accommodations are needed in a course. Students are strongly encouraged to discuss their access needs with their instructors; however, instructors cannot independently institute individual accommodations without prior approval from the disability office. Student privacy surrounding disability status is recognized under FERPA. Information about accommodations is shared on a need-to-know basis, and with only those individuals involved in instituting the accommodation.

Academic and other Support Services

We value your well-being and recognize that as a graduate student you are asked to balance a variety of responsibilities and potential stressors: in class, in lab, and in life. If you are struggling with experiences either in- or outside of class, there are resources available to help. Jackie Yun, the GSAS Director of Student Services (617-495-5005) is available to assist students navigating academic or personal difficulties and to connect students to university resources. HILS PhD students have access to free academic tutoring which can be arranged through the DMS office. A variety of academic support services are also available to GSAS students through the [Bureau of Study Counsel](#) and the [Center for Writing and Communicating Ideas](#) .

All students have access to Counseling and Mental Health Services (CAMHS) available in Longwood, Cambridge or remotely via webcam or phone. The use of CAMHS is included in the student health fee, regardless of insurance, at no additional cost. More information is available [CAMHS](#) or by calling the main office at 617-495-2042. Urgent care can be reached 24/7 at 617-495-5711.