We will notify you immediately if changes are made to this plan

MCB 66: Pathological Cell Biology

Harvard College/GSAS: 220875
Term: 2024 Spring / Full Term
Meeting Time: Monday & Wednesday 10:30â€“11:45 AM
Prerequisites: LS1A, LS50A, or LPSA
Recommended Prep: LS1B

Course Instructors

Sam Kunes
kunes@fas.harvard.edu
Office Hours: Thursdays 6:30 PM - 7:30 PM by zoom

Michele Markstein
mmarkstein@fas.harvard.edu
Office Hours: Fridays 5:00 PM - 6:00 PM by zoom

Teaching Fellows

Franky Barradale
fbarradale@fas.harvard.edu
Office Hours: Tuesdays 11-noon in Biolabs 2062/2064

For 2/13/24 only Franky OH on Zoom: https://harvard.zoom.us/j/98632403553

Katie Donovan
kathleen_donovan@g.harvard.edu
Office Hours: Fridays 9-10 AM by zoom | password 170726

Dr. Alex Eicher
aeicher1@bwh.harvard.edu
Office Hours: Tuesday 3 PM-4 PM in by zoom

Undergraduate Course Assistant

Vivan Chen
vivanchen@college.harvard.edu
Office Hours: Thursday 1:30 -2:30 PM in Biolabs 2062/2064

Sections

All sections meet on Thursdays in BioLabs 1087

Section I: Thursday Noon-1 PM
Biolabs 1087
Franky Barradale
fbarradale@fas.harvard.edu

Section II: Thursday 4:30-5:30 PM
Biolabs 1087
Katie Donovan
kathleen_donovan@g.harvard.edu

Section III: Thursday 6:00â€“7:00 PM Section
Biolabs 1087
Dr. Alex Eicher
aeicher1@bwh.harvard.edu

Course Description:

Pathological cell states are at the heart of human disease: in this course, we view cell pathology as a window into the normal state of the cell; the robustness of its homeostatic mechanisms and the alternative modes a cell may adopt in order to contribute to multicellular structures as precise as a nervous system and as chaotic as a malignant tumor. The curriculum draws upon foundational courses in genetics and cell biology (e.g. LS1A, LS1B, MCB60 and related coursework) and emphasizes advanced experimental approaches and current findings in oncogenic transformation and other pathologies to support further understanding of normal cell states through exploration of cell's pathological states.

This course fulfills concentration requirements for 1 course in intermediate biology for MCB and CPB; 1 elective course for HEB; 1 course in biology for Neuro.

Weekly Topics: Lecture, Reading, Discussion

View the weekly course schedule here.

1. Somatic Mutation and its Pathological Control
2. Cell Cycle Control and Hyperplasia (2 weeks)
   Part A: Stem Cells
   Part B: Cell Cycle Control
3. Mitotic Catastrophes: Aneuploidy and Rearrangement
4. Signaling Pathways and Their Corruption
5. Epigenetic Mechanisms Gone Awry
6. Cell-Cell Interactions Weaponized

Course Structure

Each week, instructors will assign reading from the textbook and primary literature. Students are expected to read assigned articles prior to attending class.

The class will meet twice per week for lectures given by instructors and interactive problem-solving workshops led by TFs/TAs. In addition, each student will attend a weekly discussion section to discuss the course material and reading assignments. In case of illness, emergency, or other planned absence, please inform your TF/TA via email as soon as possible.

At the end of each week, students will submit a written homework assignment in response to instructor prompts regarding a paper from that module. Assignments may range from problem sets to short essays. Late written assignments will be accepted up to 2 days after the original due date. The lowest written assignment grade is automatically dropped.

In-class Exams

Two exams, each worth 25% of your final grade, scheduled for

Wednesday March 6th

Wednesday April 24th

Grades

In-class Workshop Participation*	10%
Section Discussion	10%
Homework Assignments	30%
Exam 1	25%
Exam 2	25%
Total	*100%*

*We understand that you have complex schedules. Therefore, you can miss up to 3 workshops with no consequence to your Workshop Participation grade. Note: missing many workshops could affect your other grades.

Textbooks

You do not need to purchase a textbook. All reading material will be made available on the course website.

Textbooks for the course will be available online through Harvard Libraries. We will list the textbooks here as we use them:

***1. The Biology of Cancer* (Weinberg)**. An online version is available from the Harvard Libraries for up to 3 hours at a time. Physical copies are also available upon request from the Harvard libraries.

2. *Molecular Biology of the Cell* (Alberts). The 6th edition is available online from Harvard Libraries for up to 3 hours at a time.

Accommodations

Harvard University values inclusive excellence and providing equal educational opportunities for all students. Our goal is to remove barriers for disabled students related to inaccessible elements of instruction or design in this course. If reasonable accommodations are necessary to provide access, please contact the Disability Access Office (DAO). Accommodations do not alter fundamental requirements of the course and are not retroactive. Students should request accommodations as early as possible, since they may take time to implement. Students should notify DAO at any time during the semester if adjustments to their communicated accommodation plan are needed.