CONCEPTS IN CANCER BIOLOGY (CAMB 512)
OVERVIEW AND SYLLABUS

Fall 2025
10:15 – 11:45
Thursdays, BRB 701

COURSE GOALS: Introduce fundamental principles and emerging concepts in cancer biology. Develop conceptual mastery for how these principles and concepts were shaped through experimentation, as well as their implications, limits, and caveats. Hone your ability to identify key experiments and messages within primary literature and lead a group discussion.

COURSE DESCRIPTION: The course is divided into 6 thematic blocks: *Cancer Biology*, *Genome Integrity, Cancer Genomics, Stress Responses and Metabolism, Tumor Microenvironment,* and *Cancer Treatment*. Each meeting will showcase a faculty member lecture that highlights historical experimental breakthroughs and emerging concepts in the indicated field. Lectures will run for 45 minutes followed by a 20-minute student led presentation of a primary research paper and 10-15 minute discussion.

READING ASSIGNMENTS: Two-weeks prior to their lecture, faculty will assign a review that provides relevant background as well as a primary research paper that will be presented by a designated student and discussed by all. The faculty will also provide two discussion questions on the paper. EVERYONE IS REQUIRED to read these materials before each lecture.

STUDENT PRESENTATIONS: The presentation should be less than 20 min. Students should prepare slides that:

1) Set the stage for the work done in the paper,
2) Review the key experimental approaches and methods used, 3) Highlight the most critical discovery(ies) of the paper.

DISCUSSION: All students are expected to participate in the discussion each week. Emphasis should be placed on understanding the concepts salient to the lecture material and assessing the quality and robustness of the data in the paper. The discussion can initially be centered on the question provided by the faculty but should also be used to address and points that need clarification. We welcome additional points of discussion provided by all students and are happy to follow whatever tangents that arise. The total discussion portion is less than 20 minutes.

COURSE GRADE: The course grade will be based on 75% participation, 25% presentations. M

DISSEMINATION of INFORMATION: All communication will happen over Slack.

COURSE DIRECTOR: Bobby Bowman, Robert.Bowman@Pennmedicine.upenn.edu

COURSE SCHEDULE:

Date	Faculty	Topic	Paper Discussion
THEME I: CANCER BIOLOGY			
8/28/25	Bobby Bowman	Course Introduction	No
9/4/25	David Feldser	Oncogenes	Yes
9/11/25	Carman Li	Tumor Suppressors	Yes
9/18/25	Bobby Bowman	Cancer Cell States	Yes
9/25/25	George Burslem	Growth Signaling Pathways	Yes
10/2/25	Adam Stevens	Cell Adhesion and metastasis	Yes
			THEME II: GENOME INTEGRITY
10/9/25	Roger Greenberg	DNA maintenance/damage/repair	Yes
10/16/25	Kathrin Bernt	Cancer Epigenetics Part 1	Yes
10/23/25	Vikram Paralkar	Clinical Cancer Epigenetics in Leukemia	Yes
10/30/25	Liling Wan	Cancer Epigenetics Part 2	Yes
			THEME III: CANCER GENOMICS
11/6/25	David Schultz	Functional Genomics- Precision Oncology	Yes
11/13/25	Timour Baslan	Intro to Cancer Genomics	Yes
11/20/25	Peter Choi	Computational Genomics workshop I	No
11/27/25			No class Thanksgiving
12/4/25	Bobby Bowman	Computational Genomics workshop II	No
12/11/25	Dana Silverbush	Single cell genomic methodologies	Yes