CONCEPTS IN CANCER BIOLOGY (CAMB 512)
OVERVIEW AND SYLLABUS

Fall 2023
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: Two designated students (not the presenter) will lead the discussion after the paper is presented; one for each question. The discussion should initially be centered on the question provided by the faculty and the discussion leader's role is to begin the discussion and help moderate it. We welcome additional points of discussion provided by discussion leaders 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.
DISSEMINATION of INFORMATION: All communication will happen over Slack.
COURSE DIRECTORS:

David Feldser, dfeldser@upenn.edu
Bobby Bowman, Robert.Bowman@Pennmedicine.upenn.edu

THEME IV: STRESS & METABOLISM

Thur, Jan 4	Oxygen in Cancer	Celeste Simon
Thur, Jan 11	Cancer metabolism	Katy Wellen
Thur, Jan 18	Translational regulation in cancer	Crystal S Conn
Thur, Jan 25	Autophagy	Donita Brady

THEME VI: TUMOR MICROENVIRONMENT

Thur, Feb 1	T-cell based immunotherapy	Joe Fraietta
Thur, Feb 8	Myeloid Cells in Cancer Immunotherapy	Greg Beatty
Thur, Feb 15	Cancer Associated Fibroblasts	Ellen Pure
Thur, Feb 22	Angiogenesis and Cancer	Yi Fan
Thur, Feb 29	Cancer and the Microbiome	Joe Zackular
Thur, March 7	PENN SPRING BREAK	

THEME VII: CANCER TREATMENT

Thur, Mar 14	Vikram Paralkar	Acute Myeloid Leukemia
Thur, Mar 21	Kara Maxwell	Cancers of Homologous Recombination Defects
Thur, Mar 28	SPRING BREAK	
Thur, April 4	Alex Huang	Immune Checkpoint Therapies in Cancer
Thur, April 11	Terrence Gade	Interventional Radiology