

# 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 4 thematic blocks: *Intro to Cancer Biology*, *Genome Regulation*, *Stress Responses and Microenvironment*, and *Cancer Etiology*. 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 -minute student led presentation of a primary research paper and 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:

Donita Brady, [bradyd@penncancer.upenn.edu](mailto:bradyd@penncancer.upenn.edu)  
Peter Choi, [choip@chop.edu](mailto:choip@chop.edu)  
David Feldser, [dfeldser@upenn.edu](mailto:dfeldser@upenn.edu)

**THEME VI: TUMOR MICROENVIRONMENT**

Thur, Jan 12	Myeloid Cells in Cancer Immunotherapy	Greg Beatty
Thur, Jan 19	T-cell based immunotherapy	Joe Fraietta
Thur, Jan 26	Cancer Associated Fibroblasts	Ellen Pure
Thur, Feb 2	Angiogenesis and Cancer	Yi Fan
Thur, Feb 9	Cancer and the Microbiome	Joe Zackular
Thur, Feb 16	Intro to Cancer Genomics I	Peter Choi

**THEME VII: GENOMICS**

Thur, Feb 23	Physical Sciences of Cancer	Paul Janmey
Thur, March 2	Intro to Cancer Genomics II-workshop	Peter Choi
Thur, Mar 9	***** <b>No Class (Spring Break)</b> *****	
Thur, Mar 16	Functional Genomics- Precision Oncology	David Schultz
Thur, Mar 23	Translocations and Aneuploidy in Cancer	Kris Bosse

**THEME VIII: ELEMENTS OF CLINICAL TRANSLATION**

Thur, Mar 30	Viruses and Cancer	Elizabeth White
Thur, Apr 6	Aging and Cancer	Pat Morin
Thur, Apr 13	Cell Death and Cancer	Mike Hogarty
Thur, April 20	Mechanisms of Resistance	Irfan Asangani
Thur, April 27	Biologic Variables and Cancer	Todd Ridky
Thur, May 4	Cancer Predisposition and Surveillance	Garrett Brodeur