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

<table>
<thead>
<tr>
<th>Thursday, January 4</th>
<th>Oxygen in Cancer</th>
<th>Celeste Simon</th>
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<tbody>
<tr>
<td>Thursday, January 11</td>
<td>Cancer metabolism</td>
<td>Katy Wellen</td>
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<td>Thursday, January 18</td>
<td>Translational regulation in cancer</td>
<td>Crystal S Conn</td>
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<td>Thursday, January 25</td>
<td>Autophagy</td>
<td>Donita Brady</td>
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### THEME VI: TUMOR MICROENVIRONMENT

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<thead>
<tr>
<th>Thursday, February 1</th>
<th>T-cell based immunotherapy</th>
<th>Joe Fraietta</th>
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<tr>
<td>Thursday, February 8</td>
<td>Myeloid Cells in Cancer Immunotherapy</td>
<td>Greg Beatty</td>
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<td>Thursday, February 15</td>
<td>Cancer Associated Fibroblasts</td>
<td>Ellen Pure</td>
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<td>Thursday, February 22</td>
<td>Angiogenesis and Cancer</td>
<td>Yi Fan</td>
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<td>Thursday, February 29</td>
<td>Cancer and the Microbiome</td>
<td>Joe Zackular</td>
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<td>Thursday, March 7</td>
<td>PENN SPRING BREAK</td>
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### THEME VII: CANCER TREATMENT

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<tr>
<th>Thursday, March 14</th>
<th>Vikram Paralkar</th>
<th>Acute Myeloid Leukemia</th>
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<tr>
<td>Thursday, March 21</td>
<td>Kara Maxwell</td>
<td>Cancers of Homologous Recombination Defects</td>
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<td>Thursday, March 28</td>
<td>SPRING BREAK</td>
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<td>Thursday, April 4</td>
<td>Alex Huang</td>
<td>Immune Checkpoint Therapies in Cancer</td>
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<td>Thursday, April 11</td>
<td>Terrence Gade</td>
<td>Interventional Radiology</td>
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