OVERVIEW AND SYLLABUS
CAMB 512 – CONCEPTS IN CANCER BIOLOGY
Fall 2021
12-1:30
Thursdays, BRB 701

COURSE GOALS: There are several goals for this course. One is to introduce students to basic fundamental principles and emerging concepts in cancer biology. Another is to challenge students to think with considerable depth about how these principles and concepts were shaped through experiment, as well as their implications, limits and caveats. A third is that the lectures, readings, and exams will hone your ability to think clearly and critically about the testing of hypothesis through experimental design and data interpretation. The course aims to provide students with a foundation that will enable them to keep abreast of cancer biology topics through critical appraisal of the literature and seminars.

COURSE DESCRIPTION: The course is divided into 4 thematic blocks of cancer biology, which are: *Intro To Cancer Biology And Signal Transduction, Genome regulation, Stress Responses and Microenvironment,* and "*Putting it all together*". Each block will involve faculty members lecturing from an experimental standpoint of the literature that assumes basic knowledge of the subject. There are four course directors and one of them will attend every session. During each 1.5 hour class faculty will lecture for 45 minutes followed by a 45 minute breakout discussion. During the breakout session students will be separated into three pre-assigned groups and each group will have a student leader/presenter. Each group will discuss the primary research paper and answer the assigned question using any and all available resources. 2 out of 3 group leaders will have 10 minutes to present their question and answer using 1 powerpoint slide displaying a graphical abstract of the assigned paper.

READING ASSIGNMENTS: Two weeks prior to their lecture, faculty will assign a review that provides relevant background and a primary research paper. The faculty will also provide a separate discussion question on the paper for each group to guide student reading and discussion. Each group is responsible for reading these materials before each lecture, and discussing the paper and question in breakout sessions. Student presenters are required to produce a 1-2 page written answer to the pre-assigned question/summary of their presentation and email it to the attending course director following their presentations. They have one week to email the document to the course director that attended their session. Should a student have to miss a lecture, the student needs to notify the course directors in advance.

COURSE GRADE: The course grade will be based on 40% participation, 40% presentations, and 20% 1-2 page write-up summarizing key points of the presentations (group leaders only).

CANVAS: The assigned review, primary paper, and questions should be posted two weeks prior to each class.

COURSE DIRECTORS:

Peter Choi, Choip@email.chop.edu
Liling wan, Liling.wan@pennmedicine.upenn.edu
Crystal Conn, crystal.conn@pennmedicine.upenn.edu
Karin Eisinger, karineis@pennmedicine.upenn.edu

A**dditional attending faculty**

David Feldser, dfeldser@upenn.edu

CAMB 512 Concepts in Cancer Biology Fall 2021

1200-1:30PM Thursdays Location: BRB 701

THEME I: INTRO TO CANCER BIOLOGY and SIGNAL TRANSDUCTION		
Thur, Aug 26	Course Introduction	Course Directors
Thur, Sep 2	Hallmarks of Cancer	Brian Keith
Thur, Sep 9	Oncogenes and Tumor Suppressors in Cancer	David Feldser
Thur, Sep 16	Kinases and Cancer (major pathways)	George Burslem
THEME III: GENE REGULATION		
Thur, Sep 23	Epigenetics of Cancer 1 (DNA/RNA methylation)	Kathrin Bernt
Thur, Oct 7	Epigenetics of cancer 2 (Histone modification)	Thomas De Raedt
Thur, Oct 14	Genome integrity 1 (Guardians of the Genome)	Craig Bassing
Thur, Oct 21	Genome integrity 2 (Disruptors of the Genome)	Brad Johnson
Thur, Oct 28	Translational regulation in cancer	Crystal S Conn
THEME IV: STRESS RESPONSES		
Thur, Nov 4	Unfolded Protein & Integrated Stress Response in Cancer	Costas Koumenis
Thur, Nov 11	Intro to Cancer metabolism	Katy Wellen
Thur, Nov 18	Oxygen in Cancer	Celeste Simon
Thur Nov 25	No Class (Thanksgiving Break)	
Thur, Dec 2	Targeting Autophagy	Ravi Amaravadi
THEME V: PUTTING IT ALL TOGETHER		
Thur, Dec 9	Cancer Is A Disease Of Development Gone Awry	Ben Stanger
Thur, Dec 16	Tumor progression and metastasis	Ellen Pure