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 Evading Cell Death. 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 two 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. Each group leader 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 two primary research papers, one for each group. The faculty will also provide a discussion question on each paper to guide student reading and discussion. Each group is responsible for reading these materials before each lecture. 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
Kathrin Bernt, berntk@email.chop.edu
Karin Eisinger, karineis@pennmedicine.upenn.edu
Todd Ridky, ridky@pennmedicine.upenn.edu
David Feldser, dfeldser@upenn.edu

Additional attending faculty
Sandra Ryeom, sryeom@upenn.edu
THEME I: INTRO TO CANCER BIOLOGY and SIGNAL TRANSDUCTION

Thur, Aug 29  Course Introduction
Thur, Sep 5  Oncogenes and Tumor Suppressors  David Feldser
Thur, Sep 12  Kinases and Cancer  Donita Brady
Thur, Sep 19  Epigenetics of Cancer  Kathrin Bernt

THEME III: GENOME REGULATION

Thur, Sep 26  Cancer Predisposition and Surveillance  Garrett Brodeur
Thur, Oct 3  Transcriptional Control in Cancer  Tom De Raedt
Thur, Oct 10  Telomeres and Cancer  Brad Johnson
Thur, Oct 17  Guardians of the Genome  Craig Bassing

THEME IV: STRESS RESPONSES

Thur, Oct 24  Special class-Bench to Bedside: “Translating” Your PhD
Thur, Oct 31  Integrated Stress Response and Cancer  Costas Koumenis
Thur, Nov 7  Targeting Autophagy  Ravi Amaravadi
Thur, Nov 14  Oxygen in Cancer  Celeste Simon

THEME V: EVADING CELL DEATH

Thurs, Nov 21  Biologic sex and cancer  Todd Ridky
Thur Nov 28  No Class (Thanksgiving Break)
Thur, Dec 5  Viruses and Cancer  Elizabeth White
Thur, Dec 12  Targeting Apoptosis  Mike Hogarty
Thur, Dec 19  Pre-metastatic niche and metastasis  Sandra Ryeom/Ellen Pure