

## BMB 585: Wistar Cancer Biology Course

**Location:** The Wistar Institute, 3601 Spruce St. First floor, KOPROWSKI/BERG (note 2 classes have different location)

**Time:** Fall Semester 2019, Thursdays 2 - 4:00 pm

### Course Directors -

Dr. Brian Keith, Room 214-3, The Wistar Institute, [bkeith@wistar.org](mailto:bkeith@wistar.org)

Dr. Maureen Murphy, Room 352, The Wistar Institute, [mmurphy@Wistar.org](mailto:mmurphy@Wistar.org)

Course TA: TBD

BMB coordinator: Kelli McKenna, [mckennak@penncmedicine.upenn.edu](mailto:mckennak@penncmedicine.upenn.edu)

The course will cover basic pathways and mechanisms of cancer development and progression as well as current approaches for the identification of therapies for the treatment of cancer. The class meets once per week and will begin with a 30-minute lecture on a cancer-relevant pathway. This will be followed by a ~20-minute small group exercise and a ~60-minute discussion and presentation of that week's assigned journal club paper. The paper's scientific focus will be directly related to the lecture and it will be posted on the class Canvas site a week in advance.

**All students are expected to read the assigned paper prior to class, and to participate in class discussion.** To promote discussion, students will be organized into groups at the beginning of the semester, with whom they will work until the mid-term. Each group will be responsible for analyzing and presenting one figure from the paper, although groups won't know which figure they're presenting until the class meets (you're welcome...). Key points will include:

- What techniques were used to generate the data in the figure?
- What are the positive and negative controls?
- What are the important conclusions of the figure?
- Are there any problems with this conclusion, and what other techniques or experimental approaches could be used to solidify or corroborate the authors' conclusion?

Each week, a different group will give the closing summary of the paper and address the following:

- What are the next steps of this research? Where might this work go from here?

The mid term and final exam consist of short essays or questions related to the assigned papers. **The course is designed to provide students with an integrated learning platform, combining up-to-date basic mechanistic understanding of cancer pathways and cutting-edge molecular techniques, with particular emphasis on in-depth critical analysis of the current scientific literature.**

**Prerequisites:** Senior undergraduate or graduate level biochemistry and molecular biology, or prior acceptance by the Instructor.

**Grading:** Attendance, Class Participation 10%

Mid term exam 50%

Final Exam (not cumulative) 40%

<b>Lectures:</b>			*Location
Introduction to Cancer Biology	KEITH	August 29	Grossman Aud.
Cancer Biology Tenets and Techniques	MURPHY	Sept 5	KB
<b><u>Key pathways and targets:</u></b>			
Cancer Metabolism	ALTIERI	Sept 12	KB
The p53 tumor suppressor	MURPHY	Sept 19	KB
Melanoma biology and therapy	VILLANUEVA	Sept 26	<b>RH</b>
Telomerase and cancer	SKORDALAKES	Oct 3	KB
Hypoxia, stress responses and cancer	KEITH	Oct 17	KB
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MID TERM		Oct 24	KB
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<b><u>Systems Biological Approaches:</u></b>			
Proteomics and Epigenetics	GARCIA	Oct 31	KB
Cancer Genomics, Single Cell Analyses	KOSSENKOV	Nov 7	KB
Metabolomics	SCHUG	Nov 14	KB
<b><u>Critical topics in Cancer Biology:</u></b>			
Brain Metastases	CHEN	Nov 21	KB
Viruses and Cancer	LIEBERMAN	Dec 5	<b>RH</b>
Tumor Immunology	KEITH/GABRILOVICH	Dec 12	KB
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FINAL EXAM		Dec 19	KB
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\*Locations: KB: Koprowski/Berg. **RH**: Rhodes/Horowitz. First class: Grossman Auditorium