NATIONAL CANCER INSTITUTE DESIGNATED
ELLEN AND RONALD CAPLAN CANCER CENTER
THE WISTAR INSTITUTE

HUBERT J.P. SCHOEMAKER EDUCATION AND TRAINING CENTER
THE WISTAR INSTITUTE

The Wistar Institute
Cancer Biology

University of Pennsylvania BBCB 5850
St. Joseph's University CBI 815

Semester: Fall 2024
Day and Time: Tuesdays 1:45-4:15pm
Location: Koprowski/Berg Conference Room
The Wistar Institute, 3601 Spruce Street, Philadelphia, PA 19104

Course Directors:
Dr. Kristy Shuda McGuire, Dean of Biomedical Studies kshudamcguire@wistar.org
Dr. Italo Tempera, Associate Professor, Genome Regulation and Cell Signaling, and Associate Director, Cancer Research Career Enhancement itempera@wistar.org

Teaching Assistant:
Andrew Patterson, PhD Student apatterson@wistar.org

Course Description:
The course will cover key 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 45-minute lecture followed by group discussion and presentation of that week's assigned journal article. The paper's scientific focus will be 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 discussions. To promote discussion, students will be organized into groups at the beginning of the semester, with whom they will work until the midpoint of the semester. **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. 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?

Then **the entire class will discuss a** closing summary of the paper and address the following:

- What are the next steps of this research?
- How could this paper have been improved?

The exams consist of short-answer 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 approval by one of the course directors.

Grading:
Attendance and Class Participation 10%
Exams 2 x 45% = 90%

Schedule:

Introduction to Cancer Biology	Shuda McGuire	August 27
Oncogenic Signaling and the Ras Pathway	Villanueva/Lipchick	September 3
p53 and Tumor Suppressors	Murphy	September 10
Metabolomics	Schug	September 17
Microbiome	Shinde	September 24
Extracellular Vesicles	Bertolini	October 1
Review- Exam I		**October 8**
Cancer Metastasis	Chen	October 15
Tumor Immunology	Veglia	October 22
Cancer Immunotherapy	Claiborne	October 29
Cancer Genomics	Tian	November 5
Cancer Epigenetics	Sarma	November 12
Viruses and Cancer	Tempera	November 19
Thanksgiving Break		**November 26**
Review- Exam II		**December 3**

Please reach out with any questions. We look forward to working with you!