Please note: Each college and department may have their own requirements, in addition to those stated in the Syllabus Guidelines.

BSC 6885 Cancer Drug Discovery
Course Prerequisites: CHM2210 or equivalent
Section 001, 3 Credit hours
College of Arts and Sciences, CMMB

COURSE SYLLABUS

Instructor Name: Haitao (Mark) Ji, PH.D.
Semester/Term & Year: Spring 2019
Class Meeting Days: T, TH
Class Meeting Time: 9:00 – 10:00 am
Class Meeting Location: MRC 4084
Lab Meeting Location: N/A
Delivery Method: Lecture

I. Welcome!

II. University Course Description
This core course will offer cutting-edge knowledge in cancer drug discovery and chemical biology and reveal the development and use chemical probes to unravel the mechanisms underlying oncogenesis and innovative anticancer drug design.

III. Course Purpose
This course provides an in-depth study of the process of cancer drug discovery. This includes knowledge on multiple classes of chemical probes and tools and will provide an understanding of how to develop and use these tools to unravel the mechanisms underlying oncogenesis as well as to develop innovative anticancer drugs. Individual lectures will be supplemented with review of recent primary research articles. Students should have successfully completed undergraduate organic chemistry (CHM2210 or equivalent) prior to enrolling in this course. Successful completion of PCB 6230 (Cancer Biology I: Basics of Molecular Oncology) is highly recommended prior to enrollment. Topics include: High-Throughput Screening, Structural Biology Techniques and Structural Pharmacology, Structure-Based Drug Design, Current Anti-Cancer Drugs, Anti-Cancer Drug Repurposing, the Process of Cancer Drug Discovery, Peptidomimetics, Bioisosterism, and Synthetic Challenges in Anti-Cancer Drug Discovery.

IV. Objectives
This course is aimed to expose graduate students to modern techniques for Cancer Drug Discovery, the principles of Rational Drug Design, and the discovery of important anti-cancer drugs. The objectives of the course are to provide an overview of drug discovery/development concepts, high-throughput screening and combinatorial chemistry, and structural biology and structure-based drug design. Students will gain knowledge of clinically relevant anti-cancer drugs by class and the mode of action. Students will also gain knowledge in the process and techniques of drug discovery.

V. Student Learning Outcomes
Students will demonstrate the ability to discuss the design and use of new chemical probes for biology research. Students also will demonstrate the ability to discuss approaches and limitations of high-
throughput screening, combinatorial chemistry, and structure-based drug design for investigating cancer biology.