

CB7990 Research Technologies in Cancer Research

Winter 2017

Mondays from 11:00am – 11:50am

Class	Date	Location	Lecturer	Topic
1	01/09	C. S. Mott Center, 275 E. Hancock, Genomics Conference Room, Room 56, basement	Sue Land, PhD	Genomics Core
2	01/23	Wertz classroom (1 st floor)	Aliccia Bollig-Fischer PhD	Genomics Core
3	01/30	Scott Hall, 6 th floor, Pharmacology Library	Kami Moin, PhD	Microscopy, Imaging, and Cytometry Research (MICR)
4	02/06	Hudson-Webber, Conference Room, 7 th floor	Jessica Back, PhD	Microscopy, Imaging, and Cytometry Research (MICR)
5	02/13	TBD	Lisa Polin, PhD	Animal Core
6	02/20	Wertz classroom (1 st floor)	Lisa Polin, PhD	Animal Core
7	02/27	Wertz classroom (1 st floor)	Paul Stemmer, PhD	Proteomics Core
8	03/06	Wertz classroom (1 st floor)	Paul Stemmer, PhD	Proteomics Core
9	03/20	Hudson-Webber, Room 816	Julie Boerner, PhD	Biobanking and Correlative Sciences Core
10	03/27	Hudson-Webber, Room 816	Julie Boerner, PhD	Biobanking and Correlative Sciences Core
11	04/03	Wertz classroom (1 st floor)	Jing Li, PhD	Pharmacology Core
12	04/10	Wertz classroom (1 st floor)	Jing Li, PhD	Pharmacology Core
13	04/17	MidMed, Conference Room, 3 rd floor	Judy Abrams, PhD	Biostatistics Core
14	04/24	MidMed, Conference Room, 3 rd floor	Judy Abrams, PhD	Biostatistics Core

Learning Outcome

The purpose of this course is to introduce students to contemporary technologies in scientific research and the resources that are available at Wayne State to use these technologies. Some details of the technologies covered in this course are listed below. *It is expected that the students will become familiar with all shared resource facilities so that they can understand the theory behind the technologies and practically apply this knowledge to their own dissertation research pursuits.* This learning outcome is critical for the development of students into independent scientists, regardless of their exact career choices.

Grading

Grades will be based on attendance and an essay at the end of the term.

Genomics Core: Drs. Land and Bollig-Fischer

An overview of the Genomics Core technologies will be presented with examples of how investigators have used these technologies. The Applied Genomics Technology website www.AGTC.med.wayne.edu has current information for service technologies information with links to the companies for additional information. Special emphasis will be placed on cutting-edge and creative ways to apply and/or adapt sequencing technologies.

MICR Core: Drs. Moin & Back

An introduction to technologies currently in use in MICR will be presented with emphasis on their utility for scientific research. Examples from work by investigators currently using the Core will also be presented. Selecting the right technology/service will be discussed to emphasize the importance of basic understanding of the available technologies and corresponding instruments.

Animal Core: Dr. Polin

The Animal Core review will include a history and background of tumor biology animal studies, as well as an introduction to working with animals. Regulations and guidelines involved with emphasis on humane animal care and use will be discussed. Also, an Introduction to various animal-based cancer models will be provided (syngeneic, xenograft, transgenic) and the common tumor development sites (subcutaneous, orthotopic or spontaneously developing tumor models). Tumor model selection, study designs, data analysis will be reviewed as well as presentation considerations using examples of work by investigators currently using the Core.

Proteomics Core: Dr. Stemmer

An introduction to mass spectrometry based analysis of proteins and proteomes will be presented. Topics covered will include sample preparation, basic theoretical mass spectrometry and data analysis. Examples of recent work done in the Proteomics Core will be used to demonstrate the technologies and techniques.

Pharmacology Core: Dr. Li

This lecture is designed to introduce the KCI Pharmacology Core services, technology, and its role in preclinical and clinical drug development to the Cancer Biology graduate students. The following topics will be discussed:

- Introduction to the Pharmacology Core services: Bioanalysis and pharmacokinetic analysis
- Introduction to the state-of-art bioanalytical technology: LC-MS/MS
- Discussion with examples on the role of pharmacokinetics in pre-clinical and early phase clinical drug development
- The students will learn about what the Pharmacology Core can serve for their research