

# MIC 741 – Syllabus

Fall 2015

**Time:** Fridays, from 2:00 – 3:30 p.m.

**Place:** Shelby building, conference room 415

**Coursemasters:** Harry Schroeder, MD, PhD and Laurie Harrington, PhD

**Topic: ‘OMICS** The objective of this course is to provide graduate and postdoctoral immunology trainees with an introduction to the topics associated with ‘omics. Each of these topics will be covered by two lectures. The first will provide a general overview, and the second will focus on applications.

‘OMICS are emerging technologies for understanding the behavior of cells, tissues, organs, and the whole organism at the molecular level using methods such as genomics, proteomics, systems biology, bioinformatics, as well as the computational tools needed to analyze and make sense of the data. These technologies have the potential to facilitate prediction based on models built with existing in vivo data (animal and human), as well as new and existing in vitro and in silico data.

Session #	Date	Area of ‘Omics Discussed	Moderator
1	9/11/2015	Introduction	Harry W. Schroeder, Jr, MD, PhD
		Experimental Design & Statistics	Xiangqin Cui, PhD
2	9/18/2015	<b>CAMBAC Research Day – No class</b>	
3	9/25/2015	Genomics: Overview	David Crossman, PhD
4	10/2/2015	Genomics: Applications	David Crossman, PhD
5	10/9/2015	Genomics: Applications	David Crossman, PhD
6	10/16/2015	Epigenetics: Overview	Devin Absher, PhD
7	10/23/2015	Epigenetics: Applications	Devin Absher, PhD
8	10/30/2015	Chromatin dynamics and epigenetic programming	Robin Hatton, PhD
9	11/6/2015	Fun with ENCODE	Robin Hatton, PhD
10	11/13/2015	Proteomics: Top-Down Gel Approaches	Helen Kim, PhD
11	11/20/2015	Proteomics: High Resolution Proteomics and Glycomics	Matthew Renfro, PhD
	11/26/2015	<b>Thanksgiving Holiday</b>	
12	12/4/2015	Proteomics: Targeted and Untargeted	Stephen Barnes, PhD
13	12/11/2015	Metabolomics: Liquid Chromatography coupled to Mass Spectrometry (LC-MS)	Stephen Barnes, PhD
14	12/18/2015	Metabolomics: Imaging Mass Spectrometry	Janusz Kabarowski, PhD
	12/25/2015	<b>Christmas Holiday</b>	
	1/1/2016	<b>New Year</b>	
15	1/8/2016	Metabolomics: Nuclear Magnetic Resonance (NMR)	Ramu Krishna, PhD
16	1/15/2016	Microbiome: Overview	Charles O. Elson, MD
17	1/22/2016	Microbiome: Analysis	Matthew Stoll, MD, PhD
18	1/29/2016	Bioinformatics	Elliott Lefkowitz, PhD
19	2/5/2016	Systems Biology	