

Research Methods in M&I  
MBIO 690  
Fall, 2009  
Fridays, 1:00-3:00 pm Rm B107

Grading: Pass/Fail. A closed-book exam will be given at the end of the course. Three groups of short essay questions will be generated from the questions submitted by the instructors. Students will be required to answer one question from each group.

Attendance is mandatory and will be monitored by each person giving the lecture.

The theme is as follows. An epidemic of immune deficiency disease develops in adults. Its late onset indicates that it is potentially acquired rather than congenital. The technologies listed below will be described and discussed in the context of how they can contribute to defining the immune deficiency, isolating and identifying the bacterial pathogen, and resolving the pathological mechanism, etiology, and pathogenesis of this theoretical disease.

9/4	Stout	Computer programs used in research; literature searching, reference databases, etc.
9/11	Alard	Flow cytometry: characterization of cell type frequency, cell cycle stage, expression of co-stimulatory molecules, etc; Cell sorting by flow to allow subsequent analysis of cell function. Magnetic bead separation of cells for functional studies
9/18	Abu Kwaik Asare	Confocal & electron microscopy to dissect infection by intracellular pathogens
9/25	Jala	Cell motility and chemoattractant responses
10/2	Yolcu	In vitro assays of immune function
10/9	Graham	RNA based analysis of gene expression
10/16	Singh	Xenogen-IVIS100 in vivo imaging
10/23	Singh	Amnis Imagestream quantitative imaging
10/30	Mitchell	Transfection/transformation: cloning the gene
11/6	Cai	High through-put proteomics:a combination of automatic HPLC and LC-MS/MS
11/13	Alard	siRNA gene silencing and miRNA mediated gene regulation
11/20	Kosiewicz	Animal models of disease
11/27	No Class	Thanksgiving Break
12/4	EXAM	