

Methods of Scientific Inquiry in the Biological Sciences

BMB560 (Spring term)

Aims of the course. (1 credit) This course introduces advanced graduate and medical students to methodological and ethical aspects of scientific research by: a) examining the basic methodologies of experimental research, concept and hypothesis formation; and b) following the conceptual development of selected fields of biomedical sciences from their phenomenological to molecular stages with special regards to strategies in experimental design and hypothesis formation.

Tuesday and Thursday 4:00 to 5:30, 1001 Stellar-Chance Building.

Jan 12	The making of a scientist	Zoltan Domotor
Jan 17 & Feb 2	Methodological Basis of Scientific Inquiry (Hypotheses in biomedical science: Interaction between experiment and theory, levels of organization and description, reductionism.)	Zoltan Domotor
Feb 7 & 9	A. Dual use research of concern. B. problems of antibiotic resistance in bacteria	Harvey Rubin
Feb 14 & 16	A. Translational science and research focusing on human health B. The challenges of being both a basic researcher and an entrepreneur.	Yvonne Paterson
Feb 21 & 23	Previews of topics selected for term papers:-an open discussion	Students
Feb 28	The intellectual basis for innovation vs the research environment. Reading: http://www.supermemo.com/articles/genius.htm	David Wilson
March 1	The Center for Technology Transfer: organization, mandate and function.	
March 3 – 11	Spring Break	
March 13 & 15	Synthetic biology	Ponzy Lu
March 20 & 22	Naïve falsification and the structure of scientific “Programs”	Michael Cancro
March 27 & 29	Ethical dimensions in biomedical research	Zoltan Domotor
April 3 & 5	Open period for term paper preparation	
April 10, 12, 17, 19	Student presentations of term papers	