

Graduate Cell Biology Spring 2009

MBIO 667 Monday and Wednesday, Time 10:00 -11:30 Room K2038

Course is limited to predoctoral students or permission of course director
 Prerequisite: One semester biochemistry, waived only with permission of course director

Textbook: Molecular Biology of the Cell, Fifth Edition, Alberts, et al., eds.

Faculty instructors:

- Jill Suttles, Ph.D., Department of Microbiology and Immunology (course director)**
- Binks Wattenberg, Ph.D., Department of Medicine/Oncology**
- David Magnuson, Ph.D., Department of Neurological Surgery**
- Menq-Jer Lee, Ph.D., Department of Microbiology and Immunology**
- Wolfgang Zacharias, Ph.D., Department of Medicine, Oncology**
- Scott Whittimore, Ph.D., Department of Neurological Surgery**

Exams: There are three written, in class exams, and the final grade assigned will reflect the average of the three scores. The exams will total 100 points each and will consist primarily of short answer questions.

Grading:

- A 85-100**
- B 70-84**
- C 55-69**
- D 40-54**

Syllabus: Note: Although chapters are designated, specific reading assignments (pages) will be given.

#	Date	Topic	Instructor	Text Ch's
	Jan. 7	Introduction	Suttles	
		Membrane structure		
1	Jan. 12	Membrane components and assembly	Wattenberg	10
		Membrane potential, membrane signaling		
2	Jan. 14	Carrier proteins and active membrane transport	Magnuson	11
	Jan. 19	Holiday - Martin Luther King, Jr. Day	Magnuson	11
3	Jan. 21	Ion channels and electrical properties of membranes		
4	Jan. 26	Patch clamp technology	Magnuson	11
		Intracellular compartments and protein sorting		
5	Jan. 28	Compartmentalization of Cells	Wattenberg	12
6	Feb. 2	Intracellular vesicular traffic	Wattenberg	12
		Cell Signaling		
7	Feb. 4	Overview of receptor:ligand families General principles of cell communication	Suttles	15
	Feb. 9	EXAM I (Covers lectures 1-7)		

8	Feb. 11	Signaling through G protein-linked cell surface receptors	Suttles	15
9	Feb. 16	Signaling through enzyme-linked cell surface receptors	Suttles	15
		Cell cycle and regulation of cell proliferation, death and differentiation		
10	Feb. 18	Cell cycle overview: cell cycle check points, cyclins, cyclin-dependent kinases	Suttles	17
11	Feb. 23	Regulation of cell death	Suttles	18
12	Feb. 25	Regulation of cell differentiation	Suttles	23
13	Mar. 2	Oncogenesis	Suttles	20
14	Mar. 4	Techniques for the study of signal transduction	Suttles	
	Mar. 9	Open - (Study day)		
	Mar. 11	EXAM II (Covers lectures 8-14)		
	Mar. 16	Spring break		
	Mar. 18	Spring break		
15	Mar. 23	Proteomics	Lee	
		The Cytoskeleton		
16	Mar. 25	Cytoskeletal elements: actin, microtubules, intermediate filaments	Wattenberg	16
17	Mar. 30	Cytoskeletal regulation, cell behavior and cell trafficking	Wattenberg	16
18	April 1	Gene Array Technology	Zacharias	
		Cells in Their Social Context		
19	April 6	Cell/cell junctions, extracellular matrix	Lee	19
20	Apr. 8	Cell/matrix interactions, adhesion molecules	Lee	19
21	Apr. 13	Cellular responses to Pathogens	Suttles	24
22	Apr. 15	Stem cell engineering	Whittemore	23 (1476-1482)
	Apr. 20	No class: study day		
	Apr. 22	EXAM III (Covers lectures 15-22)		