

BMSC 212 Cell Biology: Spring '07

Time and Room: 8:30 – 10:30 AM; Ross Hall 643

Course Director: Robert G. Hawley

Email: anargh@gwumc.edu

Tel: 202-994-2763; Fax: 202-994-8885

Week 1 Visualizing Cells – Methods

Jan. 16	Course overview and discussion of grading Imaging techniques	R. Hawley A. Popratiloff
Jan. 17	Flow cytometry	T. Hawley

Week 2 Intracellular Organization and Trafficking

Jan. 22	Eukaryotic cells	R. Hawley
Jan. 23	The cytoskeleton	M. Bottazzi
Jan. 24	Membrane trafficking	J. Donaldson

Week 3 Cell Contacts and Communication

Jan. 29	Integrins	M. Stepp
Jan. 30	Extracellular matrix and basement membrane	M. Stepp
Jan. 31	Intercellular junctions	V. Hu

Week 4 Signal Transduction Pathways

Feb. 5*	No class	
Feb. 6	Ligand-gated ion channel receptors	T. Hales
Feb. 7	G protein-coupled receptors	B. Bouscarel
Feb. 8*	Growth factor receptors	B. Bouscarel

*Note: No class on Monday, Feb. 5th; Thursday, Feb. 8th class instead this week

Week 5 Developmental/Stem Cell Biology

Feb. 12	Tissue inductions in development	S. Moody
Feb. 13	Patterning and organogenesis	S. Moody
Feb. 14	Embryonic and somatic stem cells	R. Hawley

Week 6 Tissue Formation and Repair

Feb. 19	President's Day (Washington's Birthday) – No class	
Feb. 20	Hematopoietic system	R. Hawley
Feb. 21	Cardiovascular system	T. McCaffrey

Week 7 Tissue Formation and Repair (continued)

Feb. 26	Central nervous system	A. Chiaramello
Feb. 27	Immune system	D. Leitenberg
Feb. 28	Epithelial systems	M. Stepp

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Course Objectives

- To provide the background in cell biology necessary for advanced training in the biomedical sciences
- To develop graduate level skills in scientific hypothesis generation, data analysis and research methodologies
- To introduce students to the research areas of faculty in the three biomedical Ph.D. programs
- To develop a culture of cooperative learning among students and faculty

Grading

The final grade will be based on a take-home exam on the material covered on Weeks 2-4, which will be distributed on Thursday, February 8, 2007 (due by 5 PM on Tuesday, February 13, 2007), and a take-home exam on the material covered on Weeks 5-7, which will be distributed on Wednesday, February 28, 2007 (due by 5 PM on Monday, March 5, 2007). Each exam will consist of 10 essay/problem solving questions worth 5 marks each (answers limited to 1 page maximum) and will count for 50% of the final grade.

Class Attendance

Class attendance is mandatory. A sign-in sheet will be passed around at the beginning of each class and the attendance list will be maintained by the IBS office. Students with three or more unexcused absences will lose a letter grade in the course.

General Reference Text

Molecular Biology of the Cell, Fourth Edition by Bruce Alberts, Alexander Johnson, Julian Lewis, and Martin Raff (Hardcover - March 2002; Paperback - June 2006)