

BMSC 212 Cell Biology: Spring '08

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 Introduction to Eukaryotic Cells – Methods of Visualization

Jan. 14	Course overview and discussion of grading Eukaryotic cells	R. Hawley
Jan. 15	Microscopic imaging techniques	A. Popratiloff
Jan. 16	Flow cytometry	T. Hawley

Week 2 Intracellular Organization and Trafficking

Jan. 21	Martin Luther King, Jr. Day – No class	
Jan. 22	The cytoskeleton	M. Bottazzi
Jan. 23	Membrane trafficking	J. Donaldson

Week 3 Cell Contacts and Communication

Jan. 28	Integrins	M. Stepp
Jan. 29	Extracellular matrix and basement membrane	M. Stepp
Jan. 30	Intercellular junctions	V. Hu

Week 4 Signal Transduction Pathways

Feb. 4	Cell fate signaling networks	I. Riz
Feb. 5	Ligand-gated ion channel receptors	T. Hales
Feb. 6	Growth factor/G protein-coupled receptors	B. Bouscarel

Week 5 Developmental/Stem Cell Biology

Feb. 11	Tissue inductions in development	K. Neilson
Feb. 12	Patterning and organogenesis	K. Neilson
Feb. 13	Embryonic and somatic stem cells	R. Hawley

Week 6 Tissue Formation and Repair

Feb. 18	President's Day (Washington's Birthday) – No class	
Feb. 19	Hematopoietic system	A. Ramezani
Feb. 20	Cardiovascular system	T. McCaffrey

Week 7 Tissue Formation and Repair (continued)

Feb. 25	Central nervous system	A. Chiaramello
Feb. 26	Immune system	D. Leitenberg
Feb. 27	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 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 1-4, which will be distributed on Wednesday, February 6, 2008 (due by 5 PM on Monday, February 11, 2008), and a take-home exam on the material covered on Weeks 5-7, which will be distributed on Wednesday, February 27, 2008 (due by 5 PM on Monday, March 3, 2008). 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, Fifth Edition by Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts and Peter Walter, Garland Science (New York, N.Y.), 2008.