BIM 102: Quantitative Cell Biology, Fall 2013

CRN: 24906 (4 Units)

Schedule: Lectures: MW 12:10–2:00 PM, Hutchinson 115

Instructor: **Soichiro Yamada** (syamada@ucdavis.edu)
Office: 2317 GBSF, Phone: (530) 752-7251
Office Hour: By appointment

TA: Elena Foster (eefoster@ucdavis.edu)
Office Hour: Tuesday at 1-2pm in GBSF lobby

Textbook: Recommended textbooks:
Molecular Biology of the Cells, Alberts et al., 5/e 2008 Garland Science
Online at: http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=mboc4.TOC
Article database: http://www.pubmed.gov

Exams: Two midterm exams and one final exam. The exams will be open book and in a format similar to homework assignments. No makeup exams.

Grading: 20% homework, 25% midterm I, 25% midterm II and 30% final exam.

Course Schedule:

	Date	Topic	MBC	HW due
1	Sept 30	Introduction to cells	Ch 1, 8, 9	
2	Oct 2	Manipulating genes and proteins	Ch 3,8	
3	Oct 7	Nuclear transport	Ch12	
4	Oct 9	Sorting in ER and Protein coats	Ch13	
5	Oct 14	Vesicle budding and fusion	Ch13	Oct 15: #1
6	Oct 16	**Midterm 1 (25%)**		
7	Oct 21	Biochemistry of actin	Ch16	
8	Oct 23	Listeria motility		
9	Oct 28	Regulation of cell motility I	Ch16	
10	Oct 30	Regulation of cell motility II	Ch16	
11	Nov 4	Actin-based motor proteins	Ch16	Nov 5: #2
12	Nov 6	**Midterm 2 (25%)**		
13	Nov 11	*Veterans day*		
14	Nov 13	Microtubule dynamics	Ch16	
15	Nov 18	Microtubule-based motor proteins	Ch16	
16	Nov 20	Mechanics of cell division		
17	Nov 25	Cell-extracellular matrix adhesion	Ch17	
18	Nov 27	*Thanksgiving holiday*	Ch19	
19	Dec 2	Cell-cell adhesion	Ch19	Dec 4: #3
20	Dec 4	**Final (30%)**		

Relationship to outcomes: This course will help develop the following ABET outcomes:
(b) *Design and conduct experiments, as well as to analyze and interpret data from living and non-living systems.* The students learn the principles of experimental designs for biological systems, and are asked to interpret and conclude the results of experiments. The lectures cover various experimental techniques and example experiments with the discussions on potential pitfalls. In addition, the students are asked to design new experiments to address specific hypothesis to improve the understanding of biological systems.