Course Outline for Biology 266: Cell Biology

Fall Semester 2013
MWF, Period 4 (11:10am-12:00N)
Tomsich 103
Office Phone: X5394

Instructor: H. Itagaki
Office: 108 Higley
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Cell Phone: 614-940-8229

Text: Alberts, B., D. Bray, K. Hopkins, A. Johnson, J. Lewis, M. Raff, K. Roberts, P. Walter. (2009) *Essential Cell Biology*, 3rd ed. Garland Science, New York, NY. 731pp.
Plus outside reading assignments linked to course Moodle site.

Please note that the schedule below is tentative. The most current course schedule will always be on the course Moodle site.

Date		**Subject**	**Readings**
Aug.	30	Introduction Intro to the Course, Overview of Cell Biology, Introduction to Biochemistry	Ch. 1
Sept.	2	Chemical Bonds, Biological Molecules, Carbohydrates, Lipids, Nucleic Acids, Amino Acids and Proteins	Ch. 2
	4	Amino Acids, Proteins, Energetics	Ch. 2,3,4
	6	Energetics, Protein Structure and Function, Catalysis	Ch. 3,4
	9	The Questions Cell Biologists Ask What are the questions? How do they answer them?	TBA
	11	Membranes and Transport Processes Membranes and Organelles; Lipid Rafts	Ch. 11, TBA
	13	*Dissection of a sample paper*	TBA
	16	Membrane Transport Processes I (First response paper assigned)	Ch. 12
	18	Membrane Transport Processes II	Ch. 12
	20	Membrane Transport Processes III	Ch. 12, TBA
	23	Membrane Transport Processes IV (First response paper due)	Ch. 12, TBA

Sept.	25	Energy Conversion in the Cell Glycolysis	Ch. 13 (Review Ch. 3)
	27	TCA Cycle	Ch. 13
	30	Oxidative Phosphorylation (First take-home exam handed out)	Ch. 14
Oct.	2	Photosynthesis I	Ch. 14
	4	Photosynthesis II	Ch. 14
	7	Material Processing in the Cell Protein Packaging and Transport I (First take-home exam due)	Ch. 15
	9	Protein Packaging and Transport II	Ch. 15
Oct.	10-13	*Fall Break*	
	14	Protein Packaging and Transport III	Ch. 15, TBA
	16	Protein Packaging and Transport IV	Ch. 15, TBA
	18	Cellular Communications and Control Systems Signals, Receptors and Second Messengers I	Ch. 16
	21	Signals, Receptors and Second Messengers II (Second response paper assigned)	Ch. 16, TBA
	23	Signals, Receptors and Second Messengers III	Ch. 16, TBA
	25	Signals, Receptors and Second Messengers IV	Ch. 16, TBA
	28	Cytoskeleton, Cell Motility, Cell Division and Its Control The Cytoskeleton I (Second response paper due)	Ch. 17
	30	The Cytoskeleton II	Ch. 17
Nov.	1	The Cytoskeleton III	Ch. 17
	4	The Cytoskeleton IV / Motor Proteins (Second take-home exam handed out)	Ch. 17, TBA
	6	Regulation of the Cell Cycle I	Ch. 18
	8	Regulation of the Cell Cycle II	Ch. 18

Nov.	11	Regulation of the Cell Cycle III (Second take-home exam due)	Ch. 18
	13	<u>Cells, Tissues and Cancer</u> Cell-Matrix Interactions I	Ch. 20
	15	Cell-Matrix Interactions II	Ch. 20
	18	Cell-Matrix Interactions III	Ch. 20
	20	Cancer I	Ch. 20, TBA
	22	Cancer II (Third response paper assigned)	Ch. 20, TBA
23 Nov.–1 Dec.		Thanksgiving Break	
Dec.	2	Cancer III	Ch. 20, TBA
	4	Cancer IV	Ch. 20, TBA
	6	Special Topic I (Third response paper due)	TBA
	9	Special Topic II	TBA
	11	Special Topic III	TBA
	13	Special Topic IV (Third take-home exam handed out)	TBA
Dec.	20	Third Take-Home Exam Due, 4:30pm	

Biology 266: Cell Biology

Course Outline

Spring Semester 2013
TR, Period B (9:40 am-11:00 am)
Tomsich 101
Office Phone: X5394

Instructor: H. Itagaki
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Email: itagaki@kenyon.edu
Cell Phone: 614-940-8229

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About the Course: This course is designed to be an intermediate-level introduction to one of the pivotal fields in modern biology. It complements Biology 263 (Molecular Biology) in content, concentrating on the non-genomic aspects of cell function. We will cover topics such as biological membranes and ion channels; various aspects of material transport and regulation; regulation of cell energetics; and control of cell growth and cell communication. Aside from the main text, supplemental readings made up of original papers and reviews will be assigned. We will spend some time on the close reading of primary literature as well as the writing of short critical response papers. All the exams will be take-home, and consist of short answers and essays.

Prerequisites: Biology 115 and 116

Grading: There will be 3 take-home exams, each of which constitutes 20% of the grade. There will also be 3 short response papers on a piece of primary literature, each constituting 10% of your grade. Class participation/attendance will be 10% of your grade. There will be **no** final exam. **A 1/3 grade point penalty will assessed for each day an assignment is late**.

Attendance: I will take attendance. **Per departmental guidelines, for every 3 unexcused absences or very tardy arrivals, I will deduct 1/3 of a grade point on the final grade.**

The Exams: There will be 3 take-home exams during the course of the semester. They are open-book and open notes and will ask you to apply your knowledge to new situations and problems. They will be predominantly essay questions. One part of each of the exams may entail reading and critiquing a recent short parts of a journal article. You will be given one week to complete the take-home exams.

Exams: First exam handed out 30 September, due 7 October
Second exam handed out 4 November, due 11 November
Third exam handed out 13 December, due 20 December, 4:30pm

The Response Papers: There will be 3 short response papers that critically analyze and dissect a primary paper in the field. The purpose of the response paper is to briefly summarize and put into perspective the findings of the paper into a larger context and to critique the assumptions, the experiments, the analysis and the interpretations found in the paper (more details will be handed out later in the semester). The assigned papers will be determined later. These response papers are due 23 September, 28 October and 6 December; the scientific papers for these analyses will be assigned a week before the deadlines.

Email: If I need to communicate with you outside of class, I will be using the class email .dis list. Please make sure that you log in to read email at least once a day; you might otherwise miss an important message.

Use of Cell Phones and Electronics: Turn off your cell phones during class. I am OK with folks taking notes on a laptop/iPad but reading email and surfing the web are not. Failure to abide by these rules will result in my asking you to leave the class.

Academic Honesty: Plagiarism and other forms of academic dishonesty **will not be tolerated**. Please make sure that you have read carefully the Academic Honesty Guidelines in the 2013-2014 Course Catalog (http://www.kenyon.edu/directories/offices-services/registrar/course-catalog-2/administrative-matters/academic-honesty-and-questions-of-plagiarism/). If you have any questions, please see the instructor!

Disabilities: If you have a hidden or visible disability which may require classroom or test accommodations please see me as soon as possible during a scheduled office hour. If you have not already done so, you must register with the Coordinator of Disability Services (Erin Salva, salvae@kenyon.edu, x5145), who is the individual responsible for coordinating accommodations and services for students with disabilities. All information and documentation of disability are strictly confidential. No accommodations will be granted in this course without notification from the Office of Disability Services.

Expectations:

Class Attendance: Attendance is expected, and absences will detract from one's grade (see above). Please see me immediately about conflicts due to sports, performances, religious holidays, *etc.*

Assigned Readings: To participate fully in class, you must thoughtfully read the assigned material before each meeting.

Class Participation: Any time in class - ask for clarification; pose a question; link disparate ideas together; draw on your own experience. I will call on people who are not participating. Raise your hand!

Schedules and Deadlines: Plan carefully. Extensions will not be granted for conflicts with the workload for other courses. Accommodations due to illness or other personal situations must be

requested through the Dean of Students or the Health and Counseling Center.

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