

CELL BIOLOGY 301

Course #: 34-BIOL-301
 Office & hrs: EDS 215 P, 12-1, M-F
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SYLLABUS (Revised)
 Autumn Quarter
 2011-2012

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COURSE OBJECTIVES FOR CELL BIOLOGY 301: To learn: 1) the history of our understanding of the cell, 2) the structure and function of biomacromolecules (*i.e.*, protein, nucleic acids, polysaccharides, lipids), 3) principles of enzymology, 4) elements of bioenergetics, 5) cell physiology (in particular glycolysis, respiration and photosynthesis) and structures which perform them, 6) regulation/coordination of cellular processes, 7) cytology nomenclature and its etymology.

REQUIRED TEXT:

Becker, Wayne M., Kleinsmith, Lewis J., Hardin, Jeff, *The World of the Cell*, 8th Ed., Benj/Cummings Pub., (2012).

REQUIRED EQUIPMENT: Composition Notebook (Lab): Bound, graph-lined, 10 x 7 7/8.

Black, fine, permanent Pen:

Pilot V5, Uniball, &c

Bring these to EVERY lab. All notes taken during Lab should be entered directly into this notebook.

Please fasten this calendar inside the front cover of your text, bring the text to class daily.

MONDAY	WEDNESDAY	FRIDAY
Lab/recitation meets on Tuesday afternoon, 2:00-5:00 (Pop pre-lab quizzes <i>will</i> happen.)	9/21 Introduction to Course History: the threads of Cytology 1-17	9/23 Short History of Biochemistry 18-40 (read for chemistry review)
9/26 Cellular Macromolecules I: Proteins 41-54 [9/27, 4:15 PM: QUIZ I]	9/28 Cellular Macromolecules II: Nucleic acids & Polysaccharides 54-65	9/30 Cellular Macromolecules III: Lipids 65-74
10/3 Cellular Components Bioenergetics 106-128	10/5 Enzymes: protein catalysts 129-138	10/7 Enzyme Kinetics Classes of Enzyme Inhibitors 138-146
10/10 Enzyme Regulation Lineweaver-Burk Plots 146-155 [10/11, 4:15 PM: QUIZ II]	10/12 Membrane Structure 156-173	10/14 "Mosaic" Model of Struc Membrane Proteins 173-193
10/17 Movement across a membrane 193-205	10/19 Active Transport, Permeases 208-223 LAB NOTEBOOKS DUE	10/21 Cell energy, ATP Biological redox reactions 224-231
10/24 Glycolysis and fermentation 232-251 [NOTEBOOKS DISCUSSED 10/25]	10/26 Respiration: Mitochondrion structure, TCA cycle 252-267	10/28 Electron Transport Oxidative Phosphorylation 267-277 Midterm Review questions?
10/31 MIDTERM (closed book) [11/1: open book Lab midterm]	11/2 Chemiosmotic ATP synth. Intro to Photosynthesis 277-295	11/4 Chloroplast structure Intro Light Rxns 295-306
11/7 Photosynthesis I: Light Reactions, Intro to Drk Rxns 306-311	11/9 Photosynthesis II: Reductive carboxylation 311-323	11/11 Intracellular Compartments 324-332
11/14 Endoplasmic reticula: Golgi Apparatus, Exo- & endocytosis 332-350 [11/15, 4:15 PM: QUIZ III]	11/16 Lysosomes & Peroxisomes 350-364	11/18 The Cytoskeleton 422-448
11/21 Motility and Contractility 449-476	11/23 Cell Junctions and Walls 477-504 LAB NOTEBOOKS DUE	11/25 THANKS FOR EVERYTHING (No classes, among others)
11/28 The Nucleus 536-548 [11/29, 4:15 PM: QUIZ IV] [NOTEBOOKS DISCUSSED 11/29]	11/30 Cell Cycle Mitosis 549-580	12/2 Mitosis and its regulation 582-599 Bring your questions from reviewing.
12/6 Tuesday FINAL EXAM 4:00 - 6:00 (in Lab) (at the time of lab exam)	Assigned readings are to be complete prior to class on the date in which they appear. Grades are determined by your position on a histogram of student cumulative points. For sophomore courses, midline generally marks the middle of the B. See <i>How To Take A Fankhauser Course</i> for additional information and suggestions.	

