CELLULAR AND MOLECULAR BIOLOGY (BIOL 3310-001) SYLLABUS
TR 9:30 – 10:45 pm; Room N104

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Course description

Introductory analysis of the structure and function of the major components of the cell with emphasis on the molecular mechanisms involved in membrane function, signal transduction, intracellular compartments and transport, cell division and apoptosis.

Course objectives

For students to understand the structure, function, and basic principles of the major components of the cell and molecular biology, as well as become familiar with experimental evidence that supports the current knowledge of the cell.

Required text and other materials

- Text**:** Becker's World of the Cell, Hardin *et al*.
- Access to: http://www.thecellplace.com. You will need an access code, included with the purchase of a new textbook. If you have a used textbook, you may have to buy the access code separately. Once you gain access, you'll need course ID: **cm384004**
- Online access to BlackBoard: csustan.edu/Blackboard/
- Three Scantron 882-E sheets, and no. 2 pencil for exams

Grading

	% of final grade
Exam 1	25
Exam 2	25
Exam 3	25
Assignments	25

Final grade

93-100% = A	87-89% = B+	77-79% = C+	67-69% = D+
90-92% = A-	83-86% = B	73-76% = C	60-66% = D
	80-82% = B-	70-72% = C-	0-59% = F

Tentative Course Outline			
Week	**Date**	**Chapter Title**	**Chapter**
1	1/28	Course overview; a preview of the cell	1
	1/30	The chemistry of the cell	2
2	2/4	The Macromolecules of the cell	3
	2/6	Cells and Organelles	4
3	2/11	Bioenergetics: the flow of energy in the cell	5
	2/13	Enzymes: the catalysts of life	6
4	2/18	**exam 1 (chapters 1-6)**	
	2/20	Membranes: their structure, function, and chemistry	7
5	2/25	Transport across membranes: overcoming the permeability barrier	8
	2/27	Chemotrophic energy metabolism: glycolysis and fermentation	9
6	3/4	Chemotrophic energy metabolism: aerobic respiration	10
	3/6	Phototrophic energy metabolism: photosynthesis	11
7	3/11	The endomembrane system and peroxisomes	12
	3/13	catch-up, review	
8	3/18	**exam 2 (chapters 7-12)**	
	3/20	Signal transduction mechanisms: I Electrical and synaptic signaling in neurons	13
9	3/25	Signal transduction mechanisms: II Messengers and receptors	14
	3/27	Cytoskeletal systems	15
10	4/1	Cellular movement: motility and contractility	16
	4/3	Beyond the cell: cell adhesions, cell junctions, and extracellular structures	17
11	4/8	The structural basis of cellular information: DNA, chromosomes, and the nucleus	18
	4/10	catch-up, review	
12	4/15	**exam 3 (chapters 13-18)**	
	4/17	The cell cycle, DNA replication, and mitosis	19
13	4/22	Spring Break	
	4/24	Spring Break	
14	4/29	Sexual reproduction, meiosis, and genetic recombination	20
	5/1	Gene expression: I. The genetic code and transcription	21
15	5/6	Gene expression: II. Protein synthesis and sorting	22
	5/8	The regulation of gene expression	23
16	5/13	Cancer cells	24
	5/15	catch-up, review	
17	5/22	**exam 4 (chapters 19-24), 8:30 - 10:30 am**	