

BIOL 230, Fall 2017 TENTATIVE LECTURE SCHEDULE Professor: Dr. Nathan Staples

Textbook: Sadava, Hillis, Heller & Berenbaum (2014). *Life: The Science of Biology*, 10th ed.

Lecture Topic: Reading Assignment (Sadava page #s):

Wk.	Date	PART I:	BIOCHEMISTRY; CELL STRUCTURE, FUNCTION & METABOLISM:	Reading, pp.:
1	R 8/17	Ch.1 (lab), 2	Course introduction; Characteristics of "LIFE"; Scientific Method (In lab).	1-18.
2	T 8/22	Ch. (4), 2	Introduction to the Cell – membranes and organelles; Chemical Bonding; Chemistry of Water, pH.	21-36.
	R 8/24	Ch. 3	Macromolecules: Condensation, dehydration reactions. Carbohydrates;	39-42; 51-59.
3	T 8/28	Ch. 3, 4	Lipids and Membranes; Proteins; Nucleic Acids, Origins of life?- Urey/Miller. Louis Pasteur.	42-51; 62-75.
	R 8/30	Ch. 5	Cell Structure: Cell Theory; Prokaryotic/Eukaryotic cells; Endomembrane System,	77-91.
4	T 9/5	Ch. 5	Energetic organelles, the cytoskeleton; Extracellular Matrix	91-102.
	R 9/7	Ch. 6	Cellular membranes, Fluid Mosaic Model, membrane transport.	105-123. (125-141)
5	T 9/12	Ch. 6, 8	Membrane transport, signaling. Cellular metabolism, thermodynamics, Enzyme reactions.	120-123; 144-156
	R 9/14	Ch. 8, 9	Enzyme function and regulation; Harvesting Energy from glucose – Glycolysis, pyruvate oxidation.	156-162; 165-171
6	T 9/19	Ch. 9	The Krebs/TCA/Citric Acid Cycle; Electron Transport/Oxidative Phosphorylation, Fermentation.	171-183.
	R 9/21	Ch. 9, 10	Metabolic Yields & Regulation; Photosynthetic pigments, Light Reactions.	185-193.
7	T 9/26	MT #1	MIDTERM #1: ** Ch. 1-6, 8 (100 pts.) **	
	R 9/28	Ch. 10	Photosynthesis: Photophosphorylation; Dark Reactions. REVIEW FOR MIDTERM #1	193-202.
		PART II:	MOLECULAR GENETICS & BIOTECHNOLOGY:	
		Ch. 13	Chromosomes, genes, and genomes: The Genetic Material; DNA structure and replication; RNA.	259-267.
8	T 10/3	Ch. 13, 17, 18 (in lab)	Molecular DNA Replication. PCR, Sequencing; Restriction NZs & Electrophoresis; NA Hybridization. ➤ DESCRIPTION OF PROPOSED RESEARCH REPORT TOPIC due!	267-277; 353-356; 373-386. (in lab)
	R 10/4	Ch. 14	Overview of gene expression: transcription, translation, and regulation; tRNA and the Genetic Code.	281-293.
9	T 10/10	Ch. 14, 15	Molecular Mechanism of Translation. Mutations and DNA-repair; Genetic diseases & Gene therapy.	293-301; 304-318
	R 10/12	Ch. 16	Viral & Prok. Genetics: Reproduction; Bact. Vertical Gene Transfer.	328-343.
10	T 10/17	Ch. 16, 18	Prok. Gene Reg'n: Operons. Molecular cloning; cDNAs as Blots/Probes.	333-349; 374-389
	R 10/19	Ch. 16, 13	Eukaryotic Gene Regulation: Gene Structure; Telomeres, introns. REVIEW for MT #2	343-349; 275-277
11	T 10/24	MT #2	MIDTERM #2: ** Ch. 10, 13-14, 16, & parts of 15, 17, 18 (100 pts.) **	
	R 10/26	Ch. 16, 14	RNA processing, Transcriptional/Posttransc'l/Translational/Posttranslat'l Regulation	346-349; 298-301
12	T 10/31	Ch. 18, 15 (in lab)	Recombinant DNA & Genetic Engineering. Revolutionary applications. ➤ DETAILED OUTLINE OF RESEARCH TOPIC due (WITH REFERENCES)!!	374-389; 315-325.
		PART III:	CELL DIVISION & HEREDITY; CELLULAR COMMUNICATION	
	R 11/2	Ch. 11 (lab)	Cell Division & Nuclear Division: Chromosomes, the Cell Cycle; MITOSIS – kinetochores; Cancer.	205-217 (web)
13	T 11/7	Ch. 11	Cytokinesis; Sexual Reproduction; MEIOSIS; Errors in Meiosis; Apoptosis.	216-229 (web)
	R 11/9	Ch. 12	Mendelian Genetics: Historical background; Mendel's scientific method;	232-241 (web)
14	T 11/14	Ch. 12	Mendelian Genetics: Probabilities; Non-Mendelian Inheritance; (Homework problems: #1-13, pp. 210-212) Review for Midterm #3	246-253 (web)
	R 11/16	Ch. 12	Linkage, Recombination & Gene mapping; Sex Linkage, Cytoplasmic inheritance; Pedigrees.	244-255.
15	T 11/21	MT #3	MIDTERM #3: ** Ch. 14, 9, & parts of 16, 17 (100 pts.) **	
	R 11/23	HOLIDAY!	THANKSGIVING HOLIDAY Thurs., 11/26/15	
16	T 11/28	Ch. 15 (lab)	** FINAL RESEARCH REPORT DUE!!! ** Human Genetics; Pedigrees. RFLPs	316-325.
	R 11/30	Ch. 12, 7	Review Ch. 12 problems. Receptors, signal cascades	Ch. 12; 125-137
17	T 12/5	Ch. 12	Sex Linkage, Cytoplasmic inheritance; Pedigrees	244-255.
	R 12/7	Ch. 7	Cell Communication; Signal Transduction Pathways, Receptors. !!!REVIEW FOR FINAL EXAM!!! **	137-141
	T 12/12	FINAL!!	** FINAL EXAM: Tues., Dec. 12, 11:10-1:40 PM in 17-203 (150 pts) **	