

**Spring 2010 BIO 311C - Brand**  
**LECTURE/EXAM SCHEDULE\* AND ACCOMPANYING**  
**TEXTBOOK READING ASSIGNMENTS\*\***

Lect. #	Date	Topic	Text Reading
1	Jan 20	Intro. to BIO 311c. Black-box properties of the living state; The cell doctrine	Chap. 1 (all)
2	Jan 22	Historical milestones in cell biology; General properties of living cells	Chap. 6 (pp 94-97)
	Jan 22 & 25	Review I of basic chemistry during discussion period	Chap. 2 (all) Chap 4 (pp 58 – 63)
3	Jan 25	Sizes & shapes of cells, Broad classification of living organisms; Intro. to prokaryotic cell structure and functions	Chap 6 (pp 98 – 99) Chap. 27 (pp 556 - 560)
4	Jan 27	Features of prokaryotic cells. Introduction to eukaryotic cells	Chap. 6 (pp 98 - 101)
5	Jan 29	The cell nucleus; Endoplasmic reticulum; membrane-bound ribosomes, Golgi bodies	Chap. 6 (pp 102 – 107)
	Jan 29 & Feb 1	Review II of basic chemistry during discussion period	Chap. 3 (pp 46 – 52) Chap. 4 (63 - 66)
6	Feb 1	Lysosomes; The plasma membrane; The endomembrane system; Peroxisomes; Mitochondria	Chap. 6 (pp 107 - 111)
7	Feb 3	Intro. to the cytoskeleton; Microtubules	Chapter 6 (pp 112 – 116)
8	Feb 5	Microfilaments; Intermediate filaments; External coatings of cells; Introduction to plant cells	Chap. 6 (pp 116 - 122)
9	Feb 8	Unique structures and functions of plant cells; Endosymbiont theory;	Chap 25 (pp 516 – 517, <i>the first eukaryotes</i> )
10	Feb 10	Introduction to biomolecules; Covalent, polar and hydrogen bonds	Same readings as for discussion periods 1 and 2
	Feb 12	Exam 1	All reading assignments prior to Exam 1
11	Feb 15	Inorganic ions; Intro. to carbohydrates	Chap. 5 (pp 68 - 71)
12	Feb 17	Sugars; glycosidic bonds; polysaccharides	Chap 5 (pp 71 – 74)
13	Feb 19	Structure, functions of carbohydrates; Glyceride Lipids	Chap. 5 (pp 74 – 77)
14	Feb 22	Structures and functions of lipids; Introduction to proteins	Chap. 5 (pp 77 - 78)
15	Feb 24	Amino acids; Peptide bonds; Polypeptides	Chap. 5 (pp 77 – 83)
16	Feb 26	Levels of organization of proteins; functions of proteins	Chap. 5 (pp 77 – 86)
17	Mar 1	Nucleotides; polynucleotides	Chap. 5 (pp 86 - 89)

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18	Mar 3	Structure & functions of nucleic acids; conjugated molecules	Chap 5 (pp 86 – 89)
19	Mar 5	Composition and structure of biological membranes	Chap. 7 (pp 125 - 130)
20	Mar 8	Transport across biological membranes	Chap. 7 (pp 131 - 139)
21	Mar 10	Functions of biological membranes	Fig. 7.9
	Mar 12	Exam 2	All assignments after Exam 1
22	Mar 22	Chemical reactions in cells; Energetics of chemical reactions	Chap. 8 (pp 142 - 145)
23	Mar 24	The importance of ATP	Chap 8 (pp 146 – 151)
24	Mar 26	Enzyme-catalyzed reactions	Chap. 8 (pp 151 - 156)
25	Mar 29	Some classes of chemical reactions that occur in cells; Oxidation/reduction reactions	Chap. 9 (pp 163 - 166)
26	Mar 31	Introduction to metabolic pathways; Introduction to respiration	Chap. 9 (162 – 163)
27	Apr 2	Glycolysis; Fermentation; The Krebs cycle	Chap. 9 (pp 166 - 172)
28	Apr 5	Mitochondrial electron transport; Oxidative phosphorylation	Chap. 9 (pp 172 - 182)
29	Apr 7	Intro to photosynthesis; Light harvesting and light reactions	Chap. 10 (pp 185 - 195)
30	Apr 9	Photophosphorylation; “Dark” reactions of photosynthesis	Chap. 10 (pp 195 - 203)
31	Apr 12	Energy & carbon flow in the biosphere	
32	Apr 14	Communication of cells with their environment	Chap. 11 (pp 206 - 214)
	Apr 16	Exam 3	All assignments after Exam 2
33	Apr 19	Signal transduction within cells	Chap. 11 (pp 214 – 223)
34	Apr 21	Replication of DNA	Chap. 16 (pp 305 - 319)
35	Apr 23	Transcription and processing of RNA	Chap. 17 (pp 325 - 336)
36	Apr 26	Functions of RNA	Chap 18 (pp 362 - 363 & p 365)
37	Apr 28	Protein synthesis	Chap 17 (pp 337 - 348)

<b>Lect. #</b>	<b>Date</b>	<b>Topic</b>	<b>Text Reading</b>
38	<b>Apr 30</b>	Post-translational processing; Protein degradation; Structure and life cycles of viruses	Chap. 18 (p. 362-364); Chap 19 (all)
39	<b>May 3</b>	Uses of viruses; Regulation of the cell cycle	Chap 12 (pp 228-230, 238-243)
40	<b>May 5</b>	Control of gene expression	Chap. 18 (pp 351 - 356)
41	<b>May 7</b>	Closing remarks	
	<b>May 12</b>	(7:00 – 10:00 p.m.) FINAL EXAM ***	

\* Lectures will be presented in the order listed above. However, individual topics may not always fall precisely on the day indicated since the pace of the course might be affected by unanticipated circumstances. Exams will be given on the days and times indicated. Specific lecture materials and reading assignments to be included in exams will be announced at least two lecture periods prior to each respective exam.

\*\* All reading assignments listed here are from “Campbell & Reece; BIOLOGY 8<sup>th</sup> Edition”, Pearson/Benjamin Cummings, Publisher. Chemical information presented in Chapters 2, 3 and 4 will be reviewed during the first two discussion periods, although that information will not be presented during lecture periods. All exams will expect familiarity with that information.

\*\*\* The location of the Final Exam will be announced near the end of the semester