

Lecture Syllabus FA19

(Orange dates indicate traditional class periods; Blue* dates indicate flipped class periods)

Day	Lecture Topic	Reading Assignment	Discussion
Monday, August 26	Course Introduction	Freeman Chapters 1 & 2	Discussion 1: Introduction/ Macromolecule Group Assignments
Wednesday, August 28*	Domains of Life; Cells and Molecules I	Freeman: Section 1.5 Section 7.1 Section 20.4, subheading "The Natural History of Prokaryotic Genomes" Section 26.1 Becker: Section 4.2 through page 79	
Friday, August 30*	Cells and Molecules II; Carbohydrates I	Freeman: Section 7.2 Section 3.1, Header: How Do Amino Acids Link to Form Proteins? (pp. 81-82) Chapter 5 (will continue into next class period) Becker: Section 4.3 on: Plasma Membrane, Nucleus, Mitochondria, ER, Golgi, Ribosomes Section 3.3 (will continue into next class period)	
Wednesday, September 4*	Carbohydrates II	Freeman: Chapter 5 (continued from previous class period) Becker: Section 3.3 (continued from previous class period)	No Discussions this week! Labor Day – Monday, September 2
Friday, September 6	Proteins I - Amino Acids and Levels of Protein Organization	Freeman: Section 3.1 Section 3.2 Becker: Section 3.1	

Monday, September 9 <i>(Add Courses, Section Change Deadline 5:00 PM)</i>	Denaturation of Proteins; Enzymes and Enzyme Inhibition	Freeman: Chapter 3, Section 3.3; Chapter 8, Sections 8.1, 8.3, 8.4 Becker: Chapter 6, Sections 6.1, 6.2 (these pages are helpful but optional)	Discussion 2: Macromolecules
Wednesday, September 11	Enzyme Inhibition continued; Nucleic Acids	Freeman: Chapter 4, Section 4.1; Chapter 6, Section 6.1 Becker: Chapter 3, Section 3.2	
Friday, September 13	Lipids & Biomembranes	Freeman: Chapter 6, Sections 6.2, 6.3, and 6.4	
Monday, September 16*	Biomembranes II & Metabolism I	Becker: Chapter 7 (this chapter is informative but goes above our level, and is therefore optional)	Discussion 3: Exam 1 Preparation
Wednesday, September 18	Optional In-Class Review		
Thursday, September 19	Exam I (7-9 PM)		
Friday, September 20	Metabolism II – Glycolysis and Krebs Cycle	Freeman: Chapter 9, Sections 9.1 through 9.4	
Monday, September 23*	Metabolism III – ETC, Fermentation and Summary	Freeman: Chapter 9, Sections 9.5 and 9.6	
Wednesday, September 25	DNA Structure and Organization I	Freeman: Chapter 4, Section 4.2; Chapter 15, Section 15.1 Becker: Chapter 3, Section 3.2	Discussion 4: Metabolism
Friday, September 27*	DNA Structure and Organization II	Freeman: Chapter 19, Page 381 Becker: Chapter 16, Section 16.1, 16.2, 16.3 through page 448	

Monday, September 30	DNA Replication I	Freeman: Chapter 15, Sections 15.2–15.4 Becker: Chapter 14, Section 14.1, Pages 481–end of section (just the section on Telomeres)	Discussion 5: The History of the Double-Helix Discovery
Wednesday, October 2*	DNA Replication II	Freeman: Chapter 15, Sections 15.3 and 15.4	
Friday, October 4	Transcription in Bacteria	Freeman: Chapter 17, Section 17.1 Becker: Chapter 18, Section 18.2 (just the sub-sections on Bacterial Transcription)	
Monday, October 7	Transcription in Eukaryotes; RNA Processing I	Freeman: Chapter 17, Section 17.2 Becker: Chapter 18, Section 18.2 (just the sub-sections on Eukaryotic Transcription, p. 516–520)	Discussion 6: DNA Transcription/ Translation Models
Wednesday, October 9*	RNA Processing II; The Genetic Code	Freeman: Chapter 16, Section 16.3 Becker: Chapter 18, Section 18.3 from page 525 to page 530	
Friday, October 11*	Translation I	Freeman: Chapter 17, Sections 17.3–17.5 (we will only get to Initiation in 17.5 on Friday)	
Monday, October 14*	Translation II	Freeman: Chapter 17, Section 17.5	Discussion 7: Exam 2 Preparation
Wednesday, October 16	Optional In-Class Review		
Thursday, October 17	Exam II (7-9 PM)		
Friday, October 18* <i>(Course Drop Deadline 5 PM)</i>	Nuclear Structure & Domains	Freeman: Chapter 12, Section 12.1 Becker: Chapter 16, Section 16.3 Key Technique, pp. 444–445	

		<p>Chapter 16, Section 16.4 from the header <i>The Nucleus</i> up to (but not including) the section titled <i>Molecules Enter and Exit the Nucleus Through Nuclear Pores</i></p> <p>Chapter 16, Section 16.4 from the header <i>The Nucleus is Mechanically Integrated with the Rest of the Cell</i> to the end of the chapter</p>	
Monday, October 21	The Nucleolus, Mutations I	<p>Freeman: Chapter 15, Section 15.5</p> <p>Becker: Monday's readings are a continuation of Friday's readings</p>	Discussion 8: Direct-to-Consumer Genetic Testing
Wednesday, October 23	Mutations II	<p>Freeman: Chapter 15, Section 15.5; Chapter 16, Section 16.4</p> <p>Becker: Chapter 17, pages 488 & 489</p>	
Friday, October 25	Mutations III	<p>Freeman: Chapter 15, Section 15.5; Chapter 16, Section 16.4</p>	
Monday, October 28*	Nucleo-Cytoplasmic Transport, Mitochondrial Genomes and Protein Transport	<p>Freeman: Chapter 7, Section 7.4</p> <p>Becker: Chapter 16, pp. 453–459</p>	Discussion 9: Jeopardy
Wednesday, October 30	The Secretory Pathway; The Endoplasmic Reticulum I	<p>Freeman: Chapter 7, Section 7.5, up to (but not including) the header "Moving from the ER to the Golgi"</p> <p>Becker: Chapter 12, pp. 314–316 Chapter 19, pp. 556-561, beginning with the header "Protein Targeting and Sorting" and ending with (but not including) the subheader that begins "Protein Folding and Quality Control..."</p>	

		For these readings from Becker, focus your primary attention on the big picture ideas, figures, tables, and bolded terms, and ignore the part about nuclear ribosomes. (It's not incorrect, just beyond the scope of this course)	
Friday, November 1*	The Endoplasmic Reticulum II	Becker: Chapter 12, Section 12.1 Chapter 12, Section 12.3 (from beginning of section up to but not including <i>Further Glycosylation Occurs in the Golgi</i> on p. 322). Chapter 19, Section 19.5, pp. 561-562 (from the header <i>Protein Folding and Quality Control</i> up to (but not including) the header <i>Posttranslational Import</i>)	
Monday, November 4	The Golgi Apparatus	Freeman: Chapter 7, Section 7.5, from <i>Moving from the ER to the Golgi</i> up to (but not including) <i>Recycling Material in the Lysosome</i> Becker: Chapter 12, pp. 319–324, sections involving the Golgi For these readings from Becker, focus your primary attention on the big picture ideas, figures, tables, and bolded terms	Discussion 10: Mitochondrial Genomes & Transport and Signaling
Wednesday, November 6	Lysosome & Endosomes	Freeman: Chapter 7, p. 150, short sub-header titled Lysosomes; Section 7.5, from <i>Recycling Material in the Lysosome</i> to end of section	

<p>Friday, November 8</p>	<p>Cytoskeleton I - Actin Filaments</p>	<p>Freeman: Chapter 7, Section 7.6, up to section titled <i>Microtubules</i> Becker: Chapter 13, Section 13.1 Chapter 13, Section 13.3 through the bottom of p. 368 For these readings from Becker, focus your primary attention on the big picture ideas, figures, tables, and bolded terms</p>	
<p>Monday, November 11*</p>	<p>Cytoskeleton II – Actin & Myosin</p>	<p>Freeman: Chapter 7, Section 7.6, up to section titled <i>Microtubules</i> Becker: Chapter 14, Section 14.3 Chapter 14, Section 14.4 (from beginning of section up to but not including <i>The Regulation of Muscle Contraction...</i> on p. 394). Chapter 14, Section 14.5</p>	<p>Discussion 11: Exam 3 Preparation</p>
<p>Wednesday, November 13</p>	<p>Optional Review</p>		
<p>Thursday, November 14</p>	<p>Exam III (7-9 PM)</p>		
<p>Friday, November 15</p>	<p>Cytoskeleton III - Microtubules</p>	<p>Freeman: Chapter 7, Section 7.6, pp. 164-165, from section titled <i>Microtubules</i> up to subheader titled <i>Motor Proteins Pull...</i> Becker: Chapter 13, Section 13.2 through p. 361 For these readings from Becker, focus your primary attention on the big picture ideas, figures, tables, and bolded terms</p>	

<p>Monday, November 18</p>	<p>Cytoskeleton IV – Centrosomes, Centrioles & Cilia</p>	<p>Freeman: Chapter 7, Section 7.6, pp. 165-168, from section titled <i>Motor Proteins Pull...</i> to the end of the chapter Becker: Chapter 14, Section 14.1 For these readings from Becker, focus your primary attention on the big picture ideas, figures, tables, and bolded terms</p>	<p>Discussion 12: Vaccinations</p>
<p>Wednesday, November 20</p>	<p>Cell Cycle Introduction</p>	<p>Freeman: Chapter 12, Sections 12.1 & 12.2 Becker: Chapter 24, Section 24.1 & 24.2 For these readings from Becker, focus your primary attention on the big picture ideas, figures, tables, and bolded terms</p>	
<p>Friday, November 22*</p>	<p>The Events of M- Phase</p>	<p>Freeman: Chapter 12, Sections 12.1 & 12.2 Read the following sections in Becker: Chapter 24, Section 24.1 & 24.2 For these readings from Becker, focus your primary attention on the big picture ideas, figures, tables, and bolded terms</p>	
<p>November 23 – December 1</p>		<p>Fall Break</p>	
<p>Monday, December 2</p>	<p>Genetic Regulation in Bacteria I</p>	<p>Freeman: Chapter 18, Sections 18.1 – 18.3 We will be working through an animated tutorial posted in Compass and you are encouraged to go through it before class</p>	<p>Discussion 13: Exam 4 (Final Exam) Preparation</p>

Wednesday, December 4	Genetic Regulation in Bacteria II, Viruses I	Freeman: Chapter 18, Sections 18.1 – 18.3 (Continued from Monday) Chapter 33, pp. 682–687, up to section header "Analyzing the Phases of Replicative Growth"	
Friday, December 6*	Viruses II	Freeman: Chapter 33, pp. 687-693, up to section 33.3	
Monday, December 9	Recombinant DNA & Genetic Engineering I	Freeman: Chapter 20, Section 20.1	No Discussions this week!
Wednesday, December 11*	Recombinant DNA & Genetic Engineering II	Freeman: Chapter 20, Section 20.	
Thursday, December 12	Reading Day: No Classes		
Monday, December 16	Final Exam 8:00 – 11:00 AM		

