

**C365 Spring 2017 tentative lecture schedule (& related chapters)**

| <b>Wk</b>                    | <b>Tuesday</b>  | <b>Thursday</b>  | <b>Friday</b>  |
|------------------------------|---|--|--|
| <b>1</b>                     | (1) Fundamental cell biology<br><b>(2) Lab Lecture: Review of IMF's &amp; acid-base equilibrium</b>                         | Organic bonding review: strengths, shapes, FC & ON. Common Fctl. Groups. | (7) Intro. to monosaccharides: classes, structures & the key role of glucose in biology. |
| <b>2</b>                     | (7) Stereoisomer review, MS structures & the ring closing reaction (mutarotation)   | (7) Other monosaccharide reactions & disaccharide structures.            | (7) Dissaccharides & polysaccharides: structures & properties.                           |
| <b>3</b>                     | (4) Amino acid structures & properties.   | (4) Wrap up amino acids<br>Protein overview: part 1                      | (4/5) Wrap-up Protein Overview & the 4-levels of protein structure.                      |
| <b>4</b>                     | (5) The 4-levels of protein structure. $\alpha$ – helix vs. $\beta$ -sheet secondary structures.                            | (5) Protein denaturants and separation strategies.                       | (5) Wrap-up of protein topics & start lipid overview (6).                                |
| <b>5</b><br><b>Ex 1</b>      | (6) Overview of lipid classification & properties of fatty acids.   | (6) Complex mixtures: vegetable oils & membrane lipids.                  | (6) Membrane structure (fluid mosaic model) & composition.                               |
| <b>6</b>                     | (6) Membrane transporter classification & energetics  | (6) Wrap up membrane transport..   | (8) Nucleotides: composition & cellular reactions.<br>(14) Dinucleotides & CoASH         |
| <b>7</b>                     | (3) Review: 1 <sup>st</sup> & 2 <sup>nd</sup> laws of Thermodynamics & calculating $\Delta G^\circ$ of a cellular reaction. | (3) The role of ATP in the phosphate cycle of bioenergetics.             | (3) The role of ATP in the phosphate cycle of bioenergetics.                             |
| <b>8</b><br><b>Ex 2</b>      | (3) Wrap up the phosphate cycle & bioenergetics.  | (10) Review: chemical kinetics, & rate enhancements.                     | (10) Properties of enzymes vs. industrial catalysts                                      |
| <i>Spring break</i>          |   |  |  |
| <b>9</b>                     | (10) The transition state theory of enzyme catalysis & effects of T, pH, [E], & [S] on E. kinetics.                         | (10) Continuation of key parameters on enzyme kinetics.                  | (10) Enzyme inhibition and regulation.   |
| <b>10</b>                    | (10) Classification and nomenclature of enzyme reactions.   | (14) An overview of the central metabolic pathways.                      | (15) Glycolysis: The priming phase (steps 1-5).  |
| <b>11</b><br><b>Lab quiz</b> | (15) Glycolysis: The pay-off phase (steps 1-6)<br>(16) The PDHEC  | (16) Wrap up PDHEC & start the Kreb's cycle reactions                    | (16) Wrap up Krebs cycle & summary of central reactions.                                 |
| <b>12</b><br><b>Ex 3</b>     | (17) An overview of chemiosmotic coupling (ATP biosynthesis).   | (17) The electron transport chain (ETC)                                  | (17) The Fo/F1 ATPase and oxidative phosphorylation (Ox.Phos).                           |
| <b>13</b>                    | (17) Chemiosmotic coupling: ATP yields & drug classification  | (17) Wrap up chemiosmotic coupling.<br>(15) Fermentation.                | (19) Cori cycle and gluconeogenesis.   |
| <b>14</b>                    | (19) Phosphogluconate pathway, & Glycogen metabolism.   | (19) Reciprocal control of futile cycles & overview of fat utilization.  | (20) Lipid utilization: mobilization, activation, mito. Shuttle & $\beta$ -oxidation.    |
| <b>15</b>                    | (20) ATP yield from fatty acids (summary).<br><b>Lab lecture (12): Serum lipoproteins (lipid transport).</b>                | (12) Ketone bodies and ketosis.  | Wrap-up Lipid Metabolism Questions & Answers.  |

**Exam 4: Chapters 17, 19, 20, 12**

Thursday May 18<sup>th</sup> 2017 (2:45 to 4:45 PM, A107).