Syllabus Chem361-001: Biochemistry Survey

Instructor: Dali Liu, Ph.D.
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Email: dliu@luc.edu
Office Hours: W 10:30-12:30 PM or by appointment.
Lecture: MWF 1:40-2:30 PM, Life Science Building 142
Discussion: F 9:20-10:10 AM, Flanner Hall Room 105 for 361-002
F 10:25-11:15 AM, Flanner Hall Room 7 for 361-002
Text Book: Biochemistry 8th Campbell & Farrell

This Biochemistry survey class will provide fundamental learning experience focusing on Protein Structure and Function, Enzymology and Metabolism. The contents concerning Molecular Biology and Genetics including Chapters 9-13 will not be covered in detail if at all.

Schedule of Lectures (*The schedule may be slightly modified during the course of the year):

Day  Date  Topic                                      Chapter

Sector I: Aqueous Environment and Protein

M  8/25  A Chemical View of Life                   1
W  8/27  Water: The Solvent of Biochemical Reactions 1/2
F  8/29  Water: The Solvent of Biochemical Reactions 2
M  9/1   Labor Day                                  2
W  9/3   Amino Acids and Peptides                  3
F  9/5   Three-Dimensional Structure of Protein   4
M  9/8   Three-Dimensional Structure of Protein   4
W  9/10  Protein Purification and Characterization Techniques 5
F  9/12  Protein Purification and Characterization Techniques 5
M  9/15  Review for Test 1                        1-5
W  9/17  Test 1                                    1-5

Sector II: Catalysis in the Cell

F  9/19  Enzymes                                  6
M  9/22  Enzymes                                  6
W  9/24  Enzymes, Mechanisms and Control          7
F  9/26  Enzymes, Mechanisms and Control          7
M  9/29  Biological Membrane                      8
W  10/1  Biological Membrane                      8
F  10/3  Energy Changes and Electron Transfer     15
M  10/6  Mid Semester Break                       
W  10/8  Review for Test 2                        6-8, 15
F  10/10  Test 2                                  6-8, 15

Sector III: Carbohydrate Metabolism

M  10/13  Carbohydrates                           16
W  10/15  Carbohydrates /Glycolysis               16/17
F  10/17  Glycolysis                              17
M  10/20  Storage and Control in Carbohydrate Metabolism 18
Day  | Date  | Topic                                                      | Chapter |
-----|-------|------------------------------------------------------------|---------|
W    | 10/22 | The Citric Acid Cycle                                     | 19      |
F    | 10/24 | The Citric Acid Cycle                                     | 19      |
M    | 10/27 | Electron Transport and Oxidative Phosphorylation          | 20      |
W    | 10/29 | Electron Transport and Oxidative Phosphorylation          | 20      |
F    | 10/31 | Review for Test 3                                         | 16-20   |
M    | 11/3  | Test 3                                                     | 16-20   |

**Sector IV: Metabolisms, Regulation and Biomedicine**

W    | 11/5  | Photosynthesis                                            | 22      |
F    | 11/7  | Photosynthesis                                            | 22      |
M    | 11/10 | Lipid Metabolism                                          | 21      |
W    | 11/12 | Lipid Metabolism                                          | 21      |
F    | 11/14 | The Metabolism of Nitrogen                                | 23      |
M    | 11/11 | The Metabolism of Nitrogen                                | 23      |
W    | 11/19 | Integration of Metabolism: Cell Signaling                 | 24      |
F    | 11/21 | Integration of Metabolism: Cell Signaling                 | 24      |
M    | 11/24 | Viruses, Cancer and Immunology                            | 14      |
WF   | 11/26 & 28 | Thanksgivings                                         |         |
M    | 12/1  | Current Trends in Biomedical and Biological Research      |         |
W    | 12/3  | Comprehensive Review I                                   |         |
F    | 12/5  | Comprehensive Review II                                   |         |
M    | 12/15 | Final                                                      | 1:00 PM-3:00 PM |

**Grading Policy:** There are 3 tests and 1 final examination during the course. There will be 100 points possible on each of the three 50-minute tests. There will be 200 points possible on the 2-hour final. The final examination will be comprehensive. If the final counts 200 in total, then the lowest score of the first three will be dropped. Alternately, the final can be scaled back to 100 while keep the first three scores in your total score. Either way the highest possible total will be 400.

The letter grade will be determine by **strictly and precisely** using the following scale:

- A: 340-400
- A-: 320-339
- B+: 300-319
- B: 280-299
- B: 260-279
- C+: 240-259
- C: 220-239
- C-: 200-219
- D+: 180-199
- D: 160-179
- F: 160

Please arrange all your in semester travels to avoid the four exam dates. There will be NO make up exam if you miss it. Exam dates cannot be moved ahead of schedule for individuals either. All true emergencies, such us severe weather and family death will need written proof for special consideration.
Academic Integrity  It should be obvious that all answers on examinations must arise from independent, honest efforts. Nothing less is acceptable at Loyola University Chicago. Any student found cheating on any exam will receive an automatic “0” for the examination and that 0 cannot be dropped! The name of the cheating students will be brought to the attention of the Chair of the Department and the Dean of the College, who will decide if further disciplinary action is necessary. Students should realize that the school misconduct record is permanent! During Test, the proctor will do whatever necessary to prevent students making the ultimate mistake including moving certain students to a new locations.

Classroom Behavior  It is incumbent upon the students to maintain a professionalism and code of conduct appropriate with the course material and course enrollment. Rude, disruptive behavior (such as talking during lecture) will not be tolerated. While it is acceptable to use laptops or tablets for taking notes, using electronic device for reasons unrelated to class is not permitted. Students surfing Internet will be asked to leave the classroom. Video recording is not permitted.

Sakai  The instructor will use the Sakai website (https://sakai.luc.edu/) for distribute class material and announcements. It is essential that you access the site regularly to do well in this class.

Error Policy  The instructors reserve the right to amend or correct this syllabus.

Discussion Activities:

Most of the discussion sessions will focus on problem solving, in addition to lecture review and course-related research topics. You should attend the one that you are registered for. The discussion material will be reflected in exams.

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<th>Week</th>
<th>Dates</th>
<th>Topic</th>
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<td>8/29</td>
<td>pH and buffer</td>
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<td>2</td>
<td>9/5</td>
<td>Amino Acids</td>
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<td>3</td>
<td>9/12</td>
<td>Protein Structure</td>
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<td>4</td>
<td>9/19</td>
<td>Enzymology I</td>
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<td>Q&amp;A</td>
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<td>10/17</td>
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<td>9</td>
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<td>Electron Transfer and Q&amp;A</td>
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<td>Photosynthesis and Alternative Energy</td>
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<td>12</td>
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<td>11/21</td>
<td>Nitrogen Metabolism &amp; Signal transduction</td>
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<td>14</td>
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<td>No Discussion Thanksgiving</td>
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