Syllabus – CHEM 6813
Introduction to Biochemical Methods
Spring 2013
Classroom: PHSC 120
TR 1:30 – 2:45 pm

Instructor: Dr. Helen Zgurskaya
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Office hours: TR 12:00 -1:00 pm

The primary objective of this course is to prepare students theoretically and practically for the biochemical work in the laboratory. The course will explain physical, chemical and biochemical principles underlying modern techniques in the laboratory.

Prerequisites:
CHEM 3453 (Basic Physical Chemistry); CHEM 5753 (Principles of Biochemistry I) or equivalent is recommended.

Required textbook:
Access to the textbook for CHEM 5753:
OR
Journal articles, lecture notes and other course materials will be available on the D2L course website.

Additional reading:
Prentice Hall

Grading:
The final grade will be determined based on:
(1) quizzes (approximately 30% of final grade);
(2) mid-term examination (approximately 20% of final grade);
(3) presentation and discussion of Research Articles (approx. 30% of final grade)
(4) comprehensive final exam (approximately 20% of final grade).

FINAL EXAM: Tuesday, May 7, 1:30-3:30 pm

Lecture Schedule (subject to change)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>January 15</td>
<td>pH, pKa, buffers, amino acids, nucleotides</td>
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<tr>
<td>17</td>
<td>Protein and nucleic acid structure</td>
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22 Expression and purification of macromolecules
24 Ion exchange chromatography
29 Affinity chromatography
31 Gel filtration chromatography

February
5 Electrophoresis of proteins
7 Spectroscopic characterization of proteins
12 Detection and quantification of proteins
14 Immunological methods
19 Fluorescence spectroscopy I
21 Fluorescence spectroscopy II
26 Protein-protein interactions I
28 Protein-protein interactions II

March
5 Radioisotopes and autoradiography
7 Enzyme assay and kinetics I
12 Mid-term examination
17-22 Spring Break
26 Electrophoresis of nucleic acids I
28 Electrophoresis of nucleic acids II

April
2 Hybridization of Nucleic Acids I
4 Hybridization of Nucleic Acids II
9 Hydrodynamic methods I
11 Hydrodynamic methods II
16 DNA sequencing
18 Site-directed mutagenesis
23 Random mutagenesis
25 Other spectroscopic techniques I
30 Other spectroscopic techniques II

May
2 Designing experimental strategy

The instructor reserves the right to change by addition and/or subtraction any and/or all materials contained in this syllabus.

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact the instructor personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.