Syllabus

Course Information:
- **Title**: General Biological Chemistry
- **Designator and Number**: CHEM 470/570, BIOS 470X/570X
- **Credit Hours**: 3
- **Term**: Summer 2013
- **Course Location**: LaT 201

Instructor Contact Information:
- Gary M. Baker, Associate Professor and Director of Graduate studies
  Department of Chemistry and Biochemistry
- **Office Location**: LaT 426
- **Communication**: Email: gbaker@niu.edu; Office hours: Immediately after class MTuW.

Course Description:
- The focus of this course is on practical compound and macromolecular structure and properties, thermodynamics of protein-ligand and protein-protein interactions, enzyme and transport kinetics, catalytic mechanisms, and bioenergetics. Demonstrated proficiency in related areas of pre-requisite General and Organic Chemistry is mandatory. Relevant course resources will be distributed on Blackboard and will include primarily PowerPoint slides and Problem Libraries.

Student Learning Outcomes:
- These are listed in the Problem Library files posted in the Content section of Blackboard.

Student Assessment:
- **Level 400 students**:
  There are four exams, scheduled every two weeks, and each worth 100 points. Class participation can earn extra credit points that contribute to your point total. Grading scale:
  - A: $\geq 352$
  - B: 308 to 351
  - C: 260 to 307
  - D: 208 to 259
  - F: < 208
- **Level 500 students**:
  Same four exams are taken, but each is worth 90 points. Class participation is mandatory and contributes 40 points to your total. If I call on you in class you will be expected to provide an informed response. The Graduate School grading system is plus/minus. Further information about this system is [here](#). Grading scale:
  - A: $\geq 380$
  - A-: 360 to 379
  - B+: 344 to 359
  - B: 328 to 343
  - B-: 312 to 327
  - C+: 296 to 311
  - C: 272 to 295
  - C-: 256 to 271
Course Resources:
- Problem Libraries distributed on Blackboard.
- Databases accessed using a web browser: Protein Data Bank (PDB), Enzyme Structures Database (EC-PDB), DrugPort, PubChem, and others.

Course Policies:
- Students should download and review relevant materials before class sessions, as they provide the framework for lectures, activities, and exams.
- Attendance is strongly recommended for all 400- and 500-level students. Since class participation is mandatory for level-500 students, point deductions may occur if I call on you and you’re not present.
- Success on exams will depend on your ability to apply core concepts to various problems, including ones that you may not have seen before. Excessive reliance on memorization will limit your performance in this course. Pacing as you study and prepare is very important, especially in the summer given the compressed time frame.
- Exam format involves several different types of questions or problems. Some will require a written response that must be scientifically accurate, clear and level appropriate. Others will assess your command of relevant vocabulary or require a calculation that is logically and clearly presented. You may be asked to draw and label a graph, or to analyze a graph or table of data. The ability to write clear structural formulas with correct valence and formal charges, or interpret structures that are given to you using different conventions is also an expectation. General and Organic Chemistry knowledge and comprehension are integral to the discussion of biochemistry and must be evident in student responses.

**Americans with Disabilities Statement.**
- Please read and comply with this statement if you require any type of accommodation due to a disability.

Academic Integrity Statement:
- All students are required to comply with all relevant Academic Integrity (AI) standards. Relevant links can be found [here](#). All students are advised to take the NIU student tutorial on AI if they haven’t already.

Proposed Course Schedule:

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<thead>
<tr>
<th>Exam 1: Thu, June 27</th>
<th>Exam 3: Thu, Jul 25</th>
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<tbody>
<tr>
<td>• Review of relevant General and Organic Chemistry topics.</td>
<td>• Enzyme kinetics and catalytic mechanisms.</td>
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<tr>
<td>• Some connections to Biochemistry.</td>
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<tr>
<th>Exam 2: Thu, Jul 11</th>
<th>Exam 4: Thu, Aug 8</th>
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<tr>
<td>• Protein structure and function</td>
<td>• Carbohydrates, lipids, membranes, and nucleic acids.</td>
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