Fall 2009 CHEM 432: PHYSICAL CHEMISTRY FOR THE LIFE SCIENCES

Lecturer:
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Overview: Biology, despite its apparent complexity, follows the same principles of physical chemistry that govern the non-living world. Knowledge of physical chemistry established in relatively simpler model systems therefore serves as a key foundation for the study and understanding of living processes. This course will present the principles of physical chemistry and their application in the biological sciences. Particular areas that will be covered include thermodynamics, chemical and biochemical equilibrium, redox chemistry, kinetics and spectroscopy. Throughout, illustration will be made of how these principles are applied to fundamental problems in biochemistry.

Course Organization:

Lectures: MWF 10-11a.m., SGM 226

Office Hours: **Qin** Wed 12 – 1 pm, LJS 251
Nguyen Mon 2 – 3 pm, OCW214

Discussion Sessions (*required*): Friday 1 - 2 p.m. SGM 226
Emphasis on problem solving, underlying mathematics and explanations of concepts.

Class Web Page: http://www-scf.usc.edu/~chem432/
You are responsible for regularly visiting the web page for new information on the course. Particularly, the web page provides grade-lookup and bulletin board functions. Log-in is required. *You need to setup your own password following a link on the "Grade/Exam" of the class web page.*

Weekly Problem Sets: The solutions to these should be written out by each student independently. Problem sets and solutions will be posted on-line.

Bulletin Board & Feedback cards: A bulletin board is built in on the class web site for posting of class-related questions/answers, comments, and announcements. You are encouraged to attach a feedback card when you hand in the homework assignment. Extra credits will be given for the feedback cards. For details, see posting #2 on the bulletin board.

Exams: There will be two one-hour midterm exams and a two-hour final. *The course grade will be based on the following: Problem sets, 20%; Midterm 1, 20%; Midterm 2, 20 %; Final exam 40%.*

Textbook: Atkins & Paula, *Physical Chemistry for the Life Sciences*, W.H. Freeman (2006).

Additional Reference Text: Tinoco, Sauer and Wang, *Physical Chemistry, Principles and Applications in Biological Sciences*, Prentice Hall (2001).

Lecture schedule: See the "schedule" section of the class web page.