

## Fall 2011 CHEM 432: PHYSICAL CHEMISTRY FOR THE LIFE SCIENCES

### Lecturer:

Prof. Peter Qin  
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### Teaching Assistant:

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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. After this course you will be aware of how these physical principles are applied to fundamental problems in biochemistry.

### Course Organization:

**Lectures:** MWF 10 – 11 am SGM 601

<b>Office Hours:</b>	<b>Qin</b>	Wed	12 – 1 pm	LJS 251
	<b>Bradforth</b>	Wed	12 – 1 pm	SSC 604
	<b>Ding</b>	Tue	9 – 10 am	OCW 214
	<b>Nguyen</b>	Mon	11 – 12 pm	OCW214

**Discussion Sessions (required):** Friday 1 – 2 pm KAP158  
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.

**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*, 2<sup>nd</sup> Ed., W.H. Freeman (2011).

**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.

**Academic Integrity:** USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. SCampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://www.usc.edu/scampus/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.