

Physical Chemistry I
Chem 4110/6110 and 4111 (tutorial)
Spring Semester 2012
3 Semester Credits (4110/6110); 2 Semester Credits (4111)

Instructor: Ivaylo Ivanov

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Office Hours: Thursday 11:00-12:30 or by appointment

Lecture Time and Location: 4110/6110: TR from 5:30 pm-6:45 pm in Room106 Aderhold Hall

Course Prerequisites: Chem 1212K; Math 2212; Phys 2211K; and Phys 2212K. It is of critical importance for you to have mastered the prerequisites. You can use Appendix B in the textbook for a brief overview of the mathematics.

Texts: *Thermodynamics, Statistical Thermodynamics and Kinetics* (TSK) by Engel and Reid, Pearson, 2010, 2nd edition.

e-Text: Prentice Hall offers a 360 day online/downloadable version of the textbook at:
<http://www.coursesmart.com/9780321632227>

Course Description: Physical Chemistry I is a 3 credit hour semester course that covers the principles of thermodynamics, kinetics and elements of transport phenomena. Chapters 1-10 and 16-19 of the text will be covered in the course of the semester.

Help Sessions: Special Course Chem 4111 is a "problem-solving" class for assistance with homework problems, preparation for the quizzes and the required mathematics. Any student having difficulty with homework in Physical Chemistry I should register for this course. Mr. Hector Adam Velazquez will administer the tutorial. It is held from 7:15 pm-8:05 pm in Room 315 General Classroom Building.

Homework: Homework problems will be assigned to help you improve your understanding of the material. They will not be graded. However, periodically problems very similar to the homework will be placed directly on the tests.

Quizzes, Exams, Grading: There will be **four 50-minute quizzes** (see schedule at the end of the syllabus). **The lowest quiz score shall be dropped. The 3 remaining quiz scores will count equally for 75% of your overall grade.** A comprehensive "Makeup" quiz may be given at the end of the semester (outside of class hours) for anyone who misses one of the regularly scheduled quizzes. If a student misses a quiz, their score will be zero (0) for that quiz. **A**

standardized ACS exam will be given in place of a Final Exam and count for 25% of your grade. The score from the ACS cannot be dropped.

Tentative Course: Schedule Spring, 2012

<u>Dates</u>	<u>Chapter</u>	<u>Subject</u>
1/10, 12	1, 2	Introduction, ideal and real gases
1/17, 19	2	Work, heat, First Law of thermodynamics
1/24, 26, <u>31</u>	3, 4	Energy, Enthalpy, Thermochemistry
2/2,	4, 5	Entropy, Second and Third Laws
2/7, 9	5	Entropy, Second and Third Laws
2/14, 16	6	Chemical Equilibrium
2/21, 23	6	Chemical Equilibrium
2/27-3/4	--	Spring Break
3/6-3/8	8	Phase Diagrams
3/13, 15	9	Solutions
3/20, 22	10	Electrolytes
3/27, 29	16, 17	Kinetic theory, Transport
4/3	18	Introduction to Kinetics
4/5	18	Kinetics and Mechanism
4/10, 12	19	Kinetics, Mechanism and Catalysis
4/17, 19	19	Enzyme catalysis
4/24	ACS exam	(starts at 16:15 pm)
TBD	Make-up quiz	

Quiz dates are underlined.

*Only students missing one of the quizzes are eligible to take the make-up quiz.