Rutgers University Camden, Chemistry Department  
Fall Semester 2013  
Physical Chemistry I Classes, 50:160:345:01

Room: FA-240, Tuesday and Thursday 9:30 -10:50 AM. Instructor: Dr. Alexander Samokhvalov, SCI-306C, x6282, alexsam@camden.rutgers.edu, http://crab.rutgers.edu/~alexsam/. Office Hours: Tues and Thurs, 11:20 AM - 12:20 PM.


Course Outline

This Physical Chemistry I course is designed as an introduction to the principles of Quantum Chemistry and Spectroscopy. Quantum Chemistry can be viewed as the subdivision of Quantum Mechanics that provides Chemists with the physical models needed to describe atoms and molecules as pertinent to the Chemists’ needs. Most essential topics of this Course are 1) certain concepts of quantum mechanics to describe behavior of electrons (wavefunction, operators, energy, momentum etc); 2) structure of atoms, 3) atomic spectra; 4) electronic structure of molecules, e.g. molecular orbitals, and 5) molecular spectroscopy. Fundamentals of spectroscopic techniques and instrumental chemical analysis will be provided as needed.

Access to Course Materials

A Sakai course site has been created, and the course materials will be uploaded as needed. All students must have a Rutgers email address (RU Net ID) to access Sakai at https://sakai.rutgers.edu. New email accounts may require 24-48 hours for access to sakai.

Attendance

Attendance of Classes is not required, but regular attendance will significantly help to succeed in this rather difficult Course. Sign-up sheets will be distributed for every Class, and the attendance will be monitored. Students with the pattern of regular attendance of the Classes will be given a bonus up to 5% of the total points earned during the semester, at discretion of the Instructor.

Attendance of the Midterm Exams and Final Exam is required. I will grant permission to have a make-up Exam if the absence is due to any of the following documented reasons: (1) serious
illness with the written note from the doctor; (2) an order from the U.S. Military; (3) an order from the U.S. Court/jury duty; (4) officially representing the College; (5) death in the immediate family. The Instructor needs to be notified of the excused absence due to any of those reasons before the Exam, and the proper documentation must be provided in a timely fashion, before the make-up Exam is to take place. No make-up Exams will be provided in case of the non-attendance of these Exams for any other reason. An officially announced Rutgers Severe Weather policy will supersede those attendance requirements.

**Reading**

Except for the first few Lectures with basic concepts and necessary calculus, students are expected to have reviewed the required Chapters of the Course Book prior to each Lecture. Assigned Chapters and Lecture Content are provided at the beginning of the Power Point 2003 file of each Lecture posted on sakai, under the Schedule menu. The file with the full content of each Lecture will be posted to Sakai the day prior to the scheduled day of the Lecture.

**Homework/Problem Sets**

Homework is essential for the continuous progress of your education. There will be five graded Problem Sets (#2 through #6) throughout this semester that will be posted on Sakai. Deadline for submission of the homework is one week (seven days) from the day the Problem Set has been announced in class and posted on sakai. Submission of the Problem Set past due will result in zero grade for that Problem Set. Working in groups on the homework is not prohibited, but rather encouraged, since group work can greatly improve your understanding of a subject and promote your team spirit and collaboration skills. However, the homework each student submits must be his/her own, and must be written in his/her own words. Submission of identical homework by two or more students constitutes plagiarism, and will result in zero grade for the given homework for all students involved. The repeated submission of identical homework by the same student(s) will result in the application of provisions of Rutgers University Academic Integrity Policy, [http://academicintegrity.rutgers.edu/policy-on-academic-integrity](http://academicintegrity.rutgers.edu/policy-on-academic-integrity).

**Exams**

Two closed-book Midterm Exams in addition to a closed-book Final Exam will be given during this semester. These Midterm Exams are tentatively scheduled for October 3-rd and November 5\(^{th}\), 2013. The exact schedule for midterm Exams will be provided at least two weeks prior to each Exam. Midterm Exam #1 will cover the content of this semester learnt before
midterm Exam #1. Midterm Exam #2 will cover the content given since midterm Exam #1 until the midterm Exam #2. Final Exam will cover the content of the whole course, and its schedule is provided by the Office of Registrar in December 2013, http://registrar.camden.rutgers.edu/fall13_exam.html. Before each of those Exams, the Review Lectures will be given with the summary of major topics learnt. During those closed-book Exams, The Rutgers University Academic Integrity Policy will be enforced: http://academicintegrity.rutgers.edu/policy-on-academic-integrity.

Cell phone/smart device policy
Using cell phones for conversations and texting is not allowed during the Lectures, since this is a disruptive activity. Devices with wireless Internet access (no sound!) may be used sparingly during Lectures, to visit links on the Class Notes, website of the Course Book, and other Physical Chemistry related websites. During closed-book Exams, the use of cell phones and any kind of smart devices is strictly prohibited. Use of such devices during the closed-book Exams will be considered cheating, and then zero grade for that Exam will be automatically assigned, without the opportunity to take any make-up Exam.

Grading (max)
Homework: 25 pts maximum: five graded Problem Sets (#2-6), 5 pts. each.
Midterm Exam #1: 25 pts. maximum
Midterm Exam #2: 25 pts. maximum
Final exam: 25 pts. maximum
Total: 100 pts. = 100 %
Good Attitude Bonus: up to 5 pts. for >90 % attendance (at discretion of instructor).

Work/Study Ethics and Professional Behavior
Work/Study Ethics and Professional Behavior http://studentconduct.rutgers.edu/university-code-of-student-conduct are essential for success of your learning and your future professional career. Those are essentially the same you will need to comply with working as a professional. Disruptive behavior http://studentaffairs.camden.rutgers.edu/classroomdisruption.html, will not be tolerated. Repeated disruptive behavior may result in the loss of up to 10 % of total points accumulated by the given student during the semester, at discretion of the instructor, in addition to the sanctions as in the Rutgers policies.