Instructor
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Department
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DEO
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Lecture
8:30-9:20 Monday, Wednesday, Friday in room W268 CB.

Discussions
(Given by the course TA’s) Tuesday 8:30-9:20 C139 PC or Wednesday 5:30-6:20 C129 PC.

Office Hours
Monday 10-11:30 AM, Thursday 3:30-5:00 PM, or by appointment.

Text

Website
http://icon.uiowa.edu

Course Objectives
Physical chemistry is the study of the interaction of energy and matter. Topics covered typically include kinetic theory of gases, intermolecular forces, thermodynamics (i.e., the application of enthalpy, entropy, and free energy to chemical equilibrium, phase equilibria, and electrochemistry), and statistical mechanics. The course is intended primarily for chemistry, biochemistry, environmental science, and chemical and biochemical engineering majors. The course requires use of differential and integral calculus and skill in mathematical problem solving.

Course Content
• Introduction of Thermodynamic Variables
• Equations of State
• 1st Law of Thermodynamics
• Heat Capacities
• Enthalpy
• Applications of the 1st Law
• 2nd Law of Thermodynamics
• Entropy
• Free Energies
• Thermodynamic Formulae
• Phase Transitions
• Mixtures
• Chemical Equilibrium
• Probability and Statistics
• Statistical Thermodynamics

Grading

Exam 1, September 24, 6:30-8:30 PM (W128 CB) 15%
Exam 2, October 22, 6:30-8:30 PM (W128 CB) 15%
Exam 3, November 19, 6:30-8:30 PM (W128 CB) 15%
Problem Sets, approximately 1 per exam 30%
In class problems and participation 5%
Final Exam (date, time, and room TBA) 20%

The distribution of grades will be consistent with the College of Liberal Arts and Sciences recommended distribution for an advanced course:

22% A, 38% B, 37% C, 3% D, 1% F.

An approximate range of course grades will be provided after each exam. If you have questions about your grade status, please see me during office hours or by appointment. Final course grades will use + and - designations, with A+ reserved for exceptional cases.

A small portion (5%) of the course grade will be based on work done in class and class participation. Work done in class may be assigned as individual or group tasks, and in general is meant to engage the class in active learning. Exceptional class participation in the form of minimal absences, leadership in group work, and appropriate contributions to questions posted during lecture will be considered in determination of the course grade.

If you want any of your work (problem sets or exams) considered for regrading, you must bring it to my attention within a week of when the assignment/exam is returned. In addition, you must, on a separate sheet of paper, clearly state why you want your work considered for regrading. This explanation should include a re-working of the problem in detail, with your notes on where and why you think more points should be awarded. An exception to this rule is if you think your points are simply mis-added, in which case you still must bring your paper to me within a week of the return date but you are not required to write up an explanation sheet.
Cancellations

Class cancellations will be scheduled and announced on ICON in order to compensate for the exam times held outside of regular class time.

Prerequisites and Required Background Material

The prerequisites for this course include calculus and elementary physics. I will make every effort to introduce important mathematical and physical concepts before we need them, but these elements are an essential part of physical chemistry. You will be expected to master and apply the necessary mathematical methods including multivariable calculus to be successful in this course.

Expected Student Workload

This is a 3 credit hour course, so under University policy you should expect to spend six hours per week outside of class on activities related to this course. This course serves a broad audience of students from different disciplines, and you may find that you need to exceed the expected workload to do well in the course.

Attendance

Attendance is recommended if you want to do well in the class. If you must miss class on an assignment due date or if you miss an exam, you must complete an Explanatory Statement of Absence form. These forms are available through the University Registrar. (http://registrar.uiowa.edu/) You may not use cells phones while attending class. Note that as stated above, portions of the graded problem sets may be given as in class assignments, and unexcused absences will result in zero credit for any missed in-class assignments. Excused absences will be given a chance to make up for any missed in-class work.

Make-Up Exams

If you are ill or a personal emergency makes it impossible to be present for a scheduled exam, please contact me as soon as possible. If you are aware of a conflict in advance, it may be possible to take the exam early. Permission to take a make-up exam will require an Explanatory Statement of Absence.

Expectations for the Completion of Graded Problem Sets

You are expected to complete graded problem sets individually. Discussion of problem-solving strategies during TA or instructor office hours are allowed and encouraged, but your final solutions must be your own. Work that is copied from another student is not acceptable. Please see the section in the Student Academic Handbook on Rights and Responsibilities for University policy on academic misconduct: http://www.clas.uiowa.edu/students/handbook/x/

When answering a question, one needs to know the audience for the answer. In preparing problem set solutions, direct your answers towards a classmate who is “somewhat behind” you in terms of studying.
In other words, your solutions to each problem set should be detailed enough to serve as a study aid to another student in class whose understanding of the materials is less proficient than your own. Err on the side of explaining a little too much, or showing a bit too much work. Also be sure that your solutions are easily readable and that you use the same symbols/notation as used in class and in the text. This will ensure that you receive optimal point credit for your solutions.

I will personally grade a portion of each problem set and will review the quality of your solutions. If your solutions are not prepared as discussed above, you will be given one warning. If you turn in additional problem set solutions that do not meet the above detailed expectations, your grade for that problem set will be severely penalized.

Suggested Problems
In addition to graded problem sets, lists of suggested problems from the text will provided periodically. There problems will not be graded, however, they are suggested if you want to do well in the course. Working in groups on the suggested problems is encouraged, as is discussion of suggested problems during discussion sessions and TA or instructor office hours.

Administrative Home
The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at http://clas.uiowa.edu/students/handbook.

Electronic Communication
University policy specifies that students are responsible for all official correspon- dences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

Accommodations for Disabilities
A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See www.uiowa.edu/sds/ for more information.
Academic Honesty
All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College’s Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty.” Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

CLAS Final Examination Policies
The final examination schedule for each class is announced by the Registrar generally by the tenth day of classes. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar’s website and will be shared with instructors and students. It is the student’s responsibility to know the date, time, and place of a final exam.

Making a Suggestion or a Complaint
Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather
In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public Safety website.

I want to emphasize again that if you have any questions or concerns, please communicate those to me so that I can help you.