

**Physical Chemistry I**  
Chem 4110/6110  
Spring Semester 2020  
3 Semester Credits (4110/6110)

**Modifications to the original syllabus are shown in red.**

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Office Hours: **By email/videoconferencing**

Lecture Time and Location: **TR from 3:45 pm-5:00 pm;**

**Classes have been cancelled from March 14-29 and will resume online starting March 31 until the end of the semester. All remaining lectures will be hosted live on Webex at the usual class time. A link will be emailed to all students prior to each lecture that they can use to join. The online lectures will also be recorded and be made available to students.**

Course Prerequisites: Chem 1212K; Math 2212; Phys 2211K; and Phys 2212K.

Text: *Atkins' Physical Chemistry (11th Edition)* by Peter Atkins, de Paula, Julio, James Keeler  
ISBN 9780198769866

Course Description: Physical Chemistry I is a 3 credit hour course that covers the principles of thermodynamics, chemical kinetics and elements of transport phenomena. The course introduces the fundamental laws of thermodynamics and kinetics and illustrates with examples how these branches of knowledge serve as a basis for interpreting and interrelating the properties of matter. It introduces students to concepts such as chemical equilibrium, phase transitions, thermodynamics of solutions and electrolytes. Knowledge of these fundamental concepts is expected of every chemistry graduate. The course also develops key problem solving and critical thinking skills.

Help Sessions: A problem-solving tutorial will be offered to assist with homework problems, preparation for the quizzes and the required mathematics. Any student having difficulty with homework or the required math background may participate. Ms. Jina Yu will administer the tutorial. The tutorial will start the second week of the semester. Location to be determined in during first week of classes.

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 included on the tests.

Quizzes, Exams, Grading: There will be **three quizzes** (see schedule at the end of the syllabus). **The lowest quiz score will be dropped. The 2 remaining quiz scores will count equally for 67% of your overall grade. A final exam will count for 33% of the grade.** The exam will be held on Tuesday, May 5 from 13:30 to 16:00 pm.

It is no longer possible to have a standardized ACS exam in an online setting. The ACS booklets cannot be copied or distributed online. Therefore, the remaining Quiz 3 and the final exam will be distributed as PDF copies and will be completely open. Feel free to use any study materials. After you complete the exams, please scan or take snapshots of the exam pages on your cell phone and send them back (preferably also as a combined PDF file). Keep in mind that the final exam will include a few problems adapted from previous quizzes.

### Tentative Course Schedule Spring, 2019

<u>Dates</u>	<u>Topics covered</u>
1/14, 16	Introduction, ideal and real gases
1/21, 23	Work, heat, First Law of thermodynamics
1/28, 30, 2/4	Energy, Enthalpy, Thermochemistry
2/6	Entropy, Second and Third Laws
2/11, 13	Entropy, Second and Third Laws
2/18, 20	Chemical Equilibrium
2/25, 27	Chemical Equilibrium
3/3-3/5	Phase Diagrams
3/10, 12	Solutions
3/16-3/20	-- Spring Break (no classes)
3/24, 26	Electrolytes
4/31, 4/2	Kinetic theory, <del>Transport</del> <b>The crossed-out topics will not be covered.</b>
4/7, 4/9	Introduction to Kinetics
4/14, 4/16	Kinetics, Mechanism and Catalysis
4/21, <u>23</u>	Enzyme catalysis
<b>5/5</b>	<b>ACS exam (13:30-16:00 pm)</b>

Quiz dates are underlined.

### Statements required by University Policies and Regulations

Please note, the course syllabus provides a general plan for the course; **additional deviations may be necessary.**

It is required that we refer to the Policy on Academic Honesty (Section 409). The university's policy on academic honesty is published in the Faculty Affairs Handbook and the On Campus: The Undergraduate Co-Curricular Affairs Handbook and is available to all members of the university community. The policy represents a core value of the university and all members of the university community are responsible for abiding by its tenets. Lack of knowledge of this policy is not an acceptable defense to any charge of academic dishonesty. All members of the academic community -- students, faculty, and staff -- are expected to report violations of these standards of academic conduct to the appropriate authorities. The procedures for such reporting are on file in the offices of the deans of each college, the office of the dean of students, and the office of the provost.