

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

Instructor: Ivaylo Ivanov
Office: 515 Science Annex
E-mail: iivanov@gsu.edu

TA: Ms. Jina Yu
E-mail: jyu21@student.gsu.edu

Office Hours: Thursday 11:00-12:30 or email for an appointment

Lecture Time and Location: TR from 3:45 pm-5:00 pm; Petit Science Center (PSC) 230

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 **four quizzes** (see schedule at the end of the syllabus). **The lowest quiz score will be dropped. The 3 remaining quiz scores will count equally for 67% of your overall grade.** 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 33% of your grade.** The ACS exam will be held on Tuesday, May 5 from 13:30 to 16:00 pm. The score from the ACS cannot be dropped.

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, Transport
4/7, 4/9	Introduction to Kinetics
4/14, 4/16	Kinetics, Mechanism and Catalysis
4/21, 23	Enzyme catalysis
5/5	ACS exam (13:30-16:00 pm)

Quiz dates are underlined.

Statements required by University Policies and Regulations

Please note, the course syllabus provides a general plan for the course; 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.