Physical Chemistry I (Chem 6110/4110 HON)
Course Syllabus – Fall 2019

Instructor: Samer Gozem
Office: 504 Science Annex
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Office Hours: Fridays 10:30 A.M. – 12:30 P.M., or e-mail in advance.
Lecture time and place: MWF 9:30 – 10:20 A.M. in Langdale Hall 521.

Course Prerequisites: This course relies on chemistry, physics and math concepts from Chem 1212K; Math 2212; Phys 2211K, and Phys 2212K.

Textbook: "**Physical Chemistry**" by Peter Atkins, Julio de Paula, and James Keeler, 11th Edition, Oxford University Press, 2017, ISBN 9780198769866.

Course Description: Physical Chemistry I is a 3 credit semester course that covers the principles of thermodynamics, transport and kinetics, and how they serve as the basis for interpreting and interrelating the properties of matter. Topics 1-6 and 16-18 of the textbook will be covered.

Course Objectives: Understand the behavior of matter and transformation between different forms of energy as they relate to expansion and compression of gases, phase transitions, and chemical reactions.

Help Sessions: Special Course: CHEM 4111; Fridays from 12:30 - 2:10 p.m. at Aderhold Learning Center 232. All CHEM 4110 students are encouraged to register for this course.

Practice Problems: Practice problems will be assigned to help you learn and test your knowledge of each of the topics covered in the course. The CHEM 4111 session on Fridays can be used as an opportunity to ask questions about these problems if you have difficulties with them. You should therefore try to solve problems independently sometime **before** the Chem 4111 session on Friday. Several quiz and exam questions will be based directly on homework problems or will be very similar, so solving the homework problems will be highly beneficial in this class.

Quizzes & Exams: There will be four quizzes, one midterm exam, and one ACS final exam. The lowest quiz score will be dropped. **The Midterm and final ACS Exam must be completed and cannot be dropped**. Quizzes will not be given at any time other than the scheduled lecture period. Should you miss a quiz, you may use it as your drop grade. Therefore, you are allowed to miss one quiz, but you then lose the opportunity to drop another quiz with a low grade.

Grading:
Quizzes will count for **45%** of the overall grade. The midterm counts for **20%** of the grade. The ACS Exam will count for **20%** of the grade. A problem set will count for **15%** of the overall grade. The problem set questions will be emailed at the end of the fourth week and the solutions are due on or before **December 6th, 2019**.
The following plus/minus grading system will be used for everyone:

Grade	%
A+	100
A	90-100
A-	85-90
B+	80-85
B	75-80
B-	70-75
C+	65-70
C	60-65
C-	55-60
D	40-55
F	< 40

Last day to withdraw: Tuesday, October 15th, 2019
The University requires faculty, on a date set by the Provost after the mid-point of the course,
1. to give a WF to all those students who are on their rolls but no longer taking the class, and
2. to report the last day the student attended or turned in an assignment.

Problem Set Policy: The problem set must be handed in either as a physical copy or emailed to me as a clear and legible pdf file before midnight on November 30th, 2018. The problem set must represent your individual, unaided effort. Receiving unauthorized outside information or offering unauthorized information to another student is considered cheating. Any suspected offenses may be referred to the Department of Chemistry and the College of Arts and Sciences for appropriate action.

Quiz and Exam policies:
- The quizzes will be open-book, so you may use the book or your notes during these quizzes. You may also use calculators during the quizzes. However, consider that you will not have a lot of time to browse through your book/notes, so use your time wisely.
- The mid-term and ACS final are both closed-book, and you **cannot** use calculators during these two exams.
- Cell phones must be turned OFF (not just silent) during all exams and quizzes. Cell phones must not be in any place that is visible to you or me during the exam. In case of an emergency where you anticipate you might need your phone turned on during your exam, you must clear that with me first. You cell phones may not be used in place of a calculator for the quizzes.
- I reserve the right to move anyone during quizzes and exams without explanation. I typically use this simply as a way to spread people out. If you are asked to relocate, please gather your test and move to the newly assigned seat as quietly as possible.

Tentative Course Schedule:
Holidays: Labor Day: September 2nd, 2019 and Thanksgiving break: November 25-29, 2018

Dates	Topic	Subject
8/26	Prologue	Introduction, what is this course about?
8/28, 8/30	1	Ideal and real gases
9/4 – 9/13	2	First Law of Thermodynamics and Thermochemistry
9/16 (Monday)		Quiz 1 (Topics 1, 2)
9/18-10/4	3	Entropy, 2nd and 3rd laws of Thermodynamics, Free energies
10/7 (Monday)		Quiz 2 (Topic 3)
10/9 – 10/18	4	Phase diagrams and Phase transitions
10/21 (Monday)		Midterm exam (Topics 1-4)
10/23 – 11/1	5	Mixtures
11/4 – 11/8	6A, 6B	Chemical Equilibrium
11/11 (Monday)		Quiz 3 (Topics 5, 6A, 6B)
11/13 – 11/18	6C, 6D	Electrochemistry
11/20-12/4	16, 17	Transport and Kinetics
12/6 (Friday)		Quiz 4 (Topics 6, 16, 17)
12/9		Review
12/13 (Friday), 8:00 A.M.		Final Exam (ACS)