



## Physical Chemistry I (CHEM 4110/6110) Fall 2016 Semester

**Instructor:** Dr. Donald Hamelberg (E-mail: dhamelberg@gsu.edu; Phone: 404-413-5564)  
Associate Professor of Chemistry  
519 Science Annex

**Graduate Teaching Assistant:** Michael Souffrant (msouffrant1@student.gsu.edu)

**Lecture Time and Location:** MWF from 11:00 - 11:50 A.M in 430 Aderhold Learning Center

**Office Hours:** Mondays from 12:00 - 2:00 P.M. or by appointment

**Course Prerequisites:** Chem 1212K; Math 2212; Phys 2211K, 2212K. It is important for you to have mastered the prerequisites. You can use Appendix B for a brief review of some mathematical relationships.

**Text:** "Thermodynamics, Statistical Thermodynamics and Kinetics" 3rd Ed. by Engel and Reid, Pearson 2013. ISBN 978-0-321-76618-2

**e-Text:** Prentice Hall offers a 360 day online / downloadable version of the textbooks:  
<http://www.coursesmart.com/9780321766830>

**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. Chapters 1-11 and 16-19 of the text will be covered in the first semester.

**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.

**Quizzes, Exams:** There will be 4 quizzes. The lowest quiz score will be dropped. **The 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.**

**CHEM 4110:** The quizzes will count for 75% of your overall grade. The ACS Exam will count for 25% of the grade.

**HONORS CHEM 4110:** The quizzes will count for 60% of the overall grade. The ACS Exam will count for 25% of the grade. A list of 10 problems will count for 15% of the overall grade. The list will be emailed at the end of the fourth week and the solutions are due on or before December 2, 2016.

**CHEM 6110:** The quizzes will count for 60% of the overall grade. The ACS Exam will count for 25% of the grade. A list of 10 problems will count for 15% of the overall grade. The list will be emailed at the end of the fourth week and the solutions are due on or before December 2, 2016.

**Grading:** The plus/minus grading system will be used (**A+: 100; A: 90- < 100; A-: 87- < 90; B+: 83- < 87; B: 80- < 83; B-: 77- < 80; C+: 73- < 77; C: 70- < 73; C-: 67- < 70; D: 60- < 67; F: < 60**).

**Help Sessions (Michael Souffrant):** Special Course: CHEM 4111; Friday from 1:00 - 2:40 p.m. in Aderhold Learning Center 205 starting **September 2, 2016**. **All undergraduate students are encouraged to register for this course. Graduate students should not register for this course but are encouraged to sit in on the course and solve homework problems.**

**Practice Problems:** Problems are designed to help you improve and test your knowledge of each of the topics covered in the course. Problems are solved in CHEM 4111 on Fridays. Periodically, homework problems will be placed directly on the tests and many test questions will be very similar to homework problems.

**Last day to withdraw: Tuesday, October 11, 2016**

The University requires that 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.

**Student Integrity Policy:** All assignments, exams and tests taken must represent your individual, unaided efforts. Receiving unauthorized outside information or offering unauthorized information to another student during an examination is cheating. Any suspected offenses may be referred to the Department of Chemistry and the College of Arts and Sciences for appropriate action.



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## Tentative Course Schedule

**Holidays:** Labor Day: September 5, 2016; Thanksgiving: November 21-25, 2016

Dates	Chapter	Subject
8/22, 24	1	Ideal and van der Waals Gases
8/26, 8/29, 8/31, 9/2	2	Work, Heat, First Law of Thermodynamics
9/7, 9, 12	3, 4	Energy, Enthalpy, Thermochemistry
9/14	1 – 4	Quiz #1
9/16, 19, 21	5	Entropy - Second and Third Laws
9/23, 26, 28, 30, 10/3, 5	6	Chemical Equilibrium
10/7	1 – 6	Quiz #2
10/10	7	Real Gases
10/12, 14, 17	8	Phase Diagrams
10/19, 21, 24, 26, 28	9, 10	Solutions, Electrolytes
10/31	11	Electrochemical Reactions
11/2	1 - 11	Quiz #3
11/4, 7, 9	16, 17	Kinetic Theory, Transport
11/11, 14	18	Introduction to Kinetics
11/16, 18, 28, 30	18, 19	Kinetic Mechanisms, Enzyme Catalysis
12/2	16 - 19	Quiz #4
12/5	1 – 11	Review
12/7, 10:45 am	1 – 11	Final Exam: ACS Exam (430 Aderhold Learning Center)