CHE3301 - Physical Chemistry I - Spring 2017

Lectures:  
Tu  8:00 - 9:20 am  
Th  8:00 - 9:20 am  
Location:  162 Beury Hall

Lecturer:  
Prof. Daniel Strongin  
Office: 246 Beury Hall  
Office hours:  Tue 1-2p, Th 1-2p  
or by appointment  
email:  daniel.strongin@temple.edu

Course description:  
Chemistry 3301 is designed as an introduction to the fundamental principles of Physical Chemistry. The majority of the topics to be covered will involve the laws of Thermodynamics and their applications. The remainder of the semester will introduce chemical kinetics.

Course materials:  
• Solutions for text (optional but strongly recommended) - Solutions Manual Physical Chemistry.  
• Calculator is necessary for problem solving for homework and examinations.

Course Schedule:  
Attached to this syllabus is an outline for the first three weeks of the course. The outline gives the subject matter that will be presented at each lecture. Additional outline/assignment sheets will be given out as necessary. I will keep you informed if the sequence of material or its presentation date differs significantly from that in the assignment sheet.

Pre- and Co-Requisites:  
Two semesters of calculus and one semester of calculus-based physics are required. This course will be extremely difficult to complete at a satisfactory level without proper preparation in calculus.

Incompletes:  
The grade of "I" (i.e., incomplete) will only be given for extraordinary circumstances and under the guidelines set by the University. The student must have completed the majority of the work at a passing level to be considered for an "I". In the event an "I" is given, there will be a written agreement between the student and me which outlines the work that needs to be completed and the default grade that will be given if the work is not carried out in the stated time-frame.

Reading and problem assignments:  
Except for the first lecture, it is recommended that the reading listed in the course assignment sheet should be completed in advance of the associated lecture. The first two reading assignments should be
completed before the second lecture.

A sheet with several problems will be handed out approximately every week that you will be required to solve and hand in for grading a week after they were issued. One or more problems out of this set will be graded, but all or variations of these problems may appear on the examinations.

In general, the more problems you do and understand, the better you will understand the subject matter. Hence, in addition to the assigned problem that are graded, solving additional problems given in the text is strongly recommended. You can check your work by using the solutions manual, and these problems will not be graded. These problems also will help you determine areas in which you may have an incomplete understanding for which you should seek help from me or your T.A. You are welcome to submit questions (or comments) via e-mail. I will make every attempt to answer these e-mails promptly (within 2 days depending on the volume). Please remember that if your question requires a detailed response, it is probably better dealt with during office hours where it is easier to help you.

Lectures:

The lectures may not always follow the required textbook's presentation style or sequence in order to offer an alternate way about thinking about a subject. You are, however, responsible for both the lecture and material covered in the textbook. Lectures also will make you aware of areas that will be emphasized on examinations.

Recitations:

There is a recitation period set aside for each student taking this course. The recitation will concentrate on problems that I hand out during the week or from problems taken from your textbook. Quizzes will also be given during recitation. Prior to exams this period can also be used as a review.

Examinations:

Two exams will be given during the semester. The first is scheduled for February 23 and the second for April 13. You will be notified well in advance of each exam (at least two weeks) if the exam date needs to be moved. Please note that there will be no make-up examinations. Only documented excuses in extraordinary circumstances will be accepted.

Grading:

The final grade in the course is based on the total number of points accumulated over the semester in homework, midterm exams, and the final exam. The % breakdown is as follows:

- 2 midterm exams: 50%
- homework/recitation: 15%
- final exam: 35%

Students with disabilities:

Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific condition as soon as possible. Contact Disabilities Resources and Services at 215-204-1280 in 100 Ritter Annex to coordinate reasonable accommodations for students with documented disabilities.
## Schedule Sheet #1

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Subject</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 1/17</td>
<td>gas laws, equation of states</td>
<td>1A.1 – 1A.2</td>
</tr>
<tr>
<td>Th 1/19</td>
<td>equation of states First Law; Work and heat.</td>
<td>1C.1-1C.3, 2A.1-2A.3</td>
</tr>
<tr>
<td>T 1/24</td>
<td>Energy and enthalpy: U, H; heat capacity: C(_p), C(_v).</td>
<td>2A.4, 2B.1-2B.2</td>
</tr>
<tr>
<td>Th 1/26</td>
<td>Thermochemistry</td>
<td>2C.1-2C.4</td>
</tr>
<tr>
<td>T 1/31</td>
<td>State functions; exact, inexact, and total differentials (e.g., dU, dH).</td>
<td>2.D.1-2D.2</td>
</tr>
<tr>
<td>Th 2/2</td>
<td>Joule-Thomson effect</td>
<td>2D.3</td>
</tr>
<tr>
<td>T 2/7</td>
<td>Second Law of Thermodynamics, entropy.</td>
<td>2E, 3A.1-3A.2</td>
</tr>
<tr>
<td>Th 2/9</td>
<td>Carnot Cycle Entropy changes of processes</td>
<td>3A.3-3A.4</td>
</tr>
<tr>
<td>T 2/14</td>
<td>Entropy Changes</td>
<td>3A.4</td>
</tr>
</tbody>
</table>