Chem 3610, Physical Chemistry I, Fall 2022
Latest revision is 09/5/2022

Class Times: TTh 12:00 – 1:50 pm
Rm: BAUD 102
Instructor: Sandra S. Eaton
Office hours in SGM 178 or by zoom: Tues 9-10 am; Thurs 2-3 pm; or by appointment
Email: Sandra.eaton@du.edu. This email address is monitored more frequently than the Canvas email inbox.
Text: *Thermodynamics, Statistical Mechanics, & Kinetics*, 4th ed. Thomas Engel and Philip Reid

Course Outline

Date	Topic	Reading in Engel and Reid, 4th ed.
Sept. 13	Thermodynamics, gases	Ch. 1 p. 5 - 16
15	Work, heat, and the 1st Law	Ch. 2 p. 29 - 45
20	State functions, internal energy, enthalpy	Ch. 2 p. 45 - 56
22	State functions	Ch. 3 p. 65 - 73
27	Enthalpy Changes	Ch. 3 p. 74 - 81
29	Thermochemistry and Heat of Reaction	Ch. 4 p. 87 - 97
Oct. 4	Additional examples, review	
6	Exam 1, ch. 1 – 4	
11	Entropy and the 2nd Law	Ch.5 p. 107 - 115
13	2nd and 3rd Laws of Thermodynamics	Ch. 5 p. 116 - 125
18	Predicting Spontaneity – A and G	Ch. 6 p. 147 - 153
20	Chemical Equilibria	Ch. 6 p. 153 - 162
25	Chemical Equilibria (cont.)	Ch. 6 p. 163 - 176
27	Phase Diagrams	Ch. 8 p. 207 - 233
Nov. 1	Additional Examples, review	
3	Exam 2, ch. 5, 6, 8	
8	Solutions, distillation	Ch. 9 p. 237 - 247
10	Colligative Properties	Ch. 9 p. 247 - 254
15	Solution activities	Ch. 9 p. 254 - 264
17	Electrolyte Solutions	Ch. 10 p. 273 - 286
Nov 22 (Tues.)	Final exam – cumulative 12 noon - 2 pm	

Reading assignments
Reading assignments are intended to prepare you for discussions in class. It is important that you read the material before coming to class and bring questions to class.

Class participation
Although attendance will not be taken, class participation is strongly encouraged. We will work together in class to solve problems to reinforce lecture content. Masking requirements may vary depending on vaccination status and campus alert level. Our class will follow masking requirements set by the University. As of 9/5/22 masks are not required in classes.

Materials will be posted on Canvas, organized in weekly modules

- This course syllabus, posted as a file.
- Powerpoint file for each class. If you are unable to come to class please refer to the files on Canvas and, if desired, obtain notes from other students in the class.
- Homework assignments and answer keys
- Sample exams from a prior year
- Exams and Answer keys

Homework

Homework is very important to the learning process. The best way to understand the material for this class is to work problems. There are many additional problems at the end of the chapters in the text. If you have difficulty working an assigned problem, it often is useful to try a similar problem in the text.

- There will be a weekly homework assignment posted each Monday on Canvas and due the following Sunday at 11:59 pm. Discussing the material with other students in the class is a valuable learning tool and strongly encouraged. However, the homework answers that you turn in on Canvas should be your own work.
- The answers will be posted on Monday morning.
- The homework assignments will be checked for completion and one question per assignment will be selected for grading.
- The latter portion of each class will be devoted to answering questions about homework problems.

Exams

Exams will be given during class time. You may have a page of notes and a calculator with you during each exam. Preparation of this study sheet is a valuable study tool.

Absence from Exams

If you are absent for an exam, the grades for your other two exams will be weighted more heavily. There will be no makeup exams.

Grading

Homework - 20%
exam 1 - 25%
exam 2 – 25%
final exam 30%.
The grades will be uploaded to Canvas, but the entries will not be weighted so the percentages shown in Canvas will not match the weighted percentages listed above that will be used in calculating grades. The median grade for the class is expected to be about a B^+.