

PHYSICAL CHEMISTRY—CHEM 401
Fall Quarter, 2009

Instructor: Dr. Scott Nickolaisen
Office: PS 820
Phone: (323) 343-2382
Office hours: M,W: 12:00 – 1:30 p.m.; T,Th: 1:30 – 2:30 p.m.
Class hours: M,W,F: 8:30 – 9:40 a.m., BioS 244
Text: *Physical Chemistry, 8th edition* P. Atkins & J. DePaula

Physical chemistry is a study of thermodynamics, kinetics, quantum mechanics, and spectroscopy. In physical chemistry, we attempt to understand chemical phenomena based on our knowledge of the fundamental principles of physics and chemistry. Students should have completed the prerequisites for the course which include General Physics, Calculus, and Multi-Variable Calculus. The first quarter of the Physical Chemistry series covers thermodynamics including equations of state, energy, enthalpy, entropy, equilibrium, and solutions. The course consists of lectures, problem sets, and exams. Students will be most successful if they read the text prior to attending lectures, complete problem sets, and attend office hours for clarification of questions.

The following chapters of the textbook will be covered during the Fall Quarter:

Chapter 1: The Properties of Gases
Chapter 2: The First Law
Chapter 3: The Second Law
Chapter 4: Physical Transformations of Pure Substances
Chapter 5: Sample Mixtures
Chapter 6: Phase Diagrams

Grading

Grading will be based on performance on quizzes and three exams.

Homework Sets. A set of homework problems will be given for each chapter. Due dates for each homework set will be given in class. *Late homework will not be accepted under any circumstances.* Homework will be graded for completion and accuracy. Each problem set will be worth 20 points. Homework solutions will be posted on the Chemistry Department's website under the **Class Notes** tab after the due date of the problem set.

Chapter 1—Problems: 4, 7, 8, 12, 15, 20, 24
Chapter 2—Problems: 1, 4, 9, 12, 17, 22
Chapter 3—Problems: 6, 16, 18, 24, 26, 34
Chapter 4—Problems: 1, 3, 4, 8, 10, 14
Chapter 5—Problems: 6, 8, 9, 12, 18
Chapter 6—Problems: 2, 3, 5, 9, 14

Exams. Each exam will be worth 100 points. Exams will not be comprehensive, but rather cover course material presented since the previous exam. However, Physical Chemistry is comprehensive in nature, and understanding the previous topics is necessary to understand the

current material. Additionally, on the last day of lecture, an assessment exam will be administered. This exam consists of multiple choice questions from exams that are given to a national audience. The assessment exam is required—if you do not take this exam, you will receive a zero for one of your midterms. If your score on the assessment exam is higher than any of your other exams score, it will replace that score when I calculate final grades.

Exam dates

Midterm #1	4 th week of class
Midterm #2	7 th week of class
Assessment Exam	Friday, Dec. 4, 2009
Final Exam	Monday, Dec. 7, 2009, 8:00 a.m.

There are a total of 420 points possible for the quarter. Grades will be assigned based on the following scale:

- A: 85% - 100%
- B: 70% - 84%
- C: 60% - 69%
- D: 50% - 59%
- F: < 50%

Plus/minus grading will not be used in this course.

Furlough Days

There are two mandatory furlough days (because of the state's budget crisis) during the quarter when no classes will be held. These dates are Friday, Oct. 16th and Friday, Nov. 20th.