

Instructor	Prof. William R. Simpson
Office	NSF 186 and IARC 335, Office: 474-7235 Lab: 474-2436
Email	<a href="mailto:wrsimpson@alaska.edu">wrsimpson@alaska.edu</a>
Class meeting	Monday, Wednesday, and Friday 10:30 - 11:30 AM, REIC 165
Laboratory Section	Tuesday, 11:30 – 2:30 PM, REIC 245 (sometimes in Chemistry computer lab, REIC 172), Teaching Assistant: TBD
Office hours	After class; Wednesday, Friday 11:30 AM – 12:30 PM, Tuesday 2:30 PM - 3:30 PM and by appointment
Text	“Elements of Physical Chemistry” by Atkins and de Paula, 7 <sup>th</sup> edition Handouts for laboratory section

( ) Principles of thermodynamics and kinetics with applications to phase equilibria, solutions, chemical equilibrium and electrochemistry. Course teaches these concepts using both lecture and laboratory instruction. Prerequisites: CHEM F106X; MATH F252X; PHYS F104X or PHYS F212X; or permission of instructor. Lecture + Lab + Other: 3 + 3 + 0

: Chemistry 331 is the first semester of a two-semester series in physical chemistry. Our goal is to understand how physical and mathematical theories can be used to explain chemical behavior. Chapters 1-6 Thermodynamics and Kinetics of the text are covered.

In this semester, you will study thermodynamics and kinetics and apply these concepts to important chemical problems in phase equilibria, solutions, chemical equilibria and electrochemistry. At the end of the course, successful students will have gained new mathematical methods for solving chemical problems and reinforced chemical principles of equilibrium and kinetics.

The course follows your text in the order described in the attached schedule of topics. Specific reading assignments for each coming class will be posted to the Blackboard course management system within a few hours of the end of the prior class. During Monday and Wednesday classes, I will lecture on the material in the book, answer questions, and may have students interact through problem solving or discussions. Reading the book the lectures will be important for following and understanding the lectures. The Monday classes are a combination of lecture and in-class quizzes. These Monday quizzes are a very important part of the course as they will help you to stay current with and to understand the material of the course. The course also has a laboratory section to give physical examples of the concepts you learn in class.

( ): Your course grade will be based on the total points of the hour exams, the final exam, the quiz scores, reading questions, laboratory (see below), and possibly extra credit from reading questions (see below). Material assigned in readings, in lecture, in laboratory, or in homework problems may appear on an exam. The maximum number of points for each is given below:

Exercise	Points
Hour exams (100 points each)	300
Final exam	100
Quizzes	80
Reading questions	20
Laboratory	150
	650
Reading questions	+10

\_\_\_\_\_The exams will be given during class, and will be one hour in length. You are permitted to use

problems will be conceptual in nature. These questions address the theoretical connections between various physical chemistry problems.

\_\_\_\_\_ The quizzes will be given during class on Mondays and will be about 15 minutes in length. You are permitted to use a calculator, and a formula / unit sheet (distributed with the quiz). The formula / unit sheet will have all appropriate formulae as well as numerical values for constants and unit conversions. The quizzes will be on all Mondays except on the

**Resources:**

*Faculty*—Bill Simpson, NSF 186, 474-7235, wrsimpson@alaska.edu

*Chem331 home page:* log into the blackboard system: