

UNIVERSITY OF CALGARY  
DEPARTMENT OF CHEMISTRY  
**COURSE SYLLABUS**  
**WINTER 2016**

**COURSE:** CHEMISTRY 371 - Physical Chemistry I: Thermodynamics

LEC	DAYS	TIME	ROOM	INSTRUCTOR	OFFICE	PHONE	EMAIL	OFFICE HOURS
L01	MWF	12:00-12:50	SA 104	Dr. Yujun Shi	SB 301	210-8674	<a href="mailto:shiy@ucalgary.ca">shiy@ucalgary.ca</a>	Fr 10:50- 11:50

**TEXTBOOK:** Physical Chemistry, 3rd Edition, Thomas Engel and Philip Reid

**TOPICS COVERED AND SUGGESTED READING:**

Fundamental Concepts of Thermodynamics - Chapter 1 Section 1.1 to 1.4  
The Properties of Real Gases - Chapter 1 Section 1.5 and Chapter 7 Section 7.1 to 7.4  
The First Law of Thermodynamics - Chapter 2 Section 2.1 to 2.3, 2.5 to 2.11  
The Variation of Internal Energy and Enthalpy - Chapter 3 All  
Thermochemistry - Chapter 4 Section 4.1 to 4.5  
The Second and Third Law of Thermodynamics - Chapter 5 All  
Chemical Equilibrium - Chapter 6 Section 6.1 to 6.13  
Phase Diagrams of Pure Substances - Chapter 8 Section 8.1 to 8.7  
Ideal and Real Solutions - Chapter 9 Section 9.1 to 9.4, 9.6 to 9.12

**LABORATORY EXPERIMENTS:**

1. Data Analysis for Physical Chemistry Laboratory - An Introduction to Microsoft Excel
2. Equations of State of Gases
3. Measurements of Entropy Changes
4. The Dependence of Vapor Pressure on Temperature
5. Thermodynamics - Laws of Disorder
6. Freezing Point Depression
7. Decomposition of Ammonium Carbamate
8. The Calorimetric Determination of the Heats of Mixing

Department Approval: Approved by Department Head

Date: December 4, 2015