



Jordan University of Science and Technology
Faculty of Science & Arts
Chemistry Department

CHEM247 Physical Chemistry (1)

Summer Semester 2019-2020

Course Catalog

3 Credit Hours. This course is an introduction to chemical thermodynamics with applications to gases, solutions and phase equilibria to provide a firm foundation for understanding the physical principles that govern chemical and biological systems.

Text Book

Title	Physical Chemistry
Author(s)	Laidler, K.J.; Meiser, J.H.; Sanctuary, B. C.
Edition	4th Edition
Short Name	Physical Chemistry
Other Information	

Instructor

Name	Dr. Rateb Hina
Office Location	-
Office Hours	
Email	rhina@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Sun, Mon, Tue, Wed : 11:30 - 13:00
Room: منصة الكترونية

Prerequisites		
Line Number	Course Name	Prerequisite Type
901020	MATH102 Calculus 2	Prerequisite / Pass
911020	CHEM102 General Chemistry (2)	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Nature of Physical Chemistry, system, state and equilibrium and thermal equilibrium.	
Week 2	Gases and the kinetic theory of gases	
Week 3	Real Gases	
Week 4	The First Law of thermodynamics. Energy work	
Week 5	Thermochemistry	
Week 6	Ideal and Real Gases Relationships	
Week 7	The Second Law of thermodynamics. Carnot Cycle and entropy	
Week 8	Equilibrium and the Gibbs energy	
Week 9	Some thermodynamic relationships	
Week 10	Chemical Equilibrium involving ideal and nonideal gaseous systems	
	Chemical Equilibrium in solution, heterogeneous equilibria. Factors Effecting chemical equilibria	
Week 12	Phase Recognition, phase equilibria and equilibria in 1-component system	
Week 13	Ideal Solutions and Raoult's Law	
Week 14	Partial Molal Quantities and Chemical Potential.	
Week 15	Thermodynamics of solution and Colligative properties.	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Students are expected to acquire a basic understanding of the following topics: ideal and real gases and kinetic theory of gases. [3a, 2b, 1e, 3i]	25%	
also expected to acquire an awareness of the role of Chemistry in everyday life. [1f, 1j, 2k]	10%	

Understand the three laws of chemical thermodynamics and appreciate their significance in physical science. [1a, 1e, 1h]	25%	
Master the applications of chemical thermodynamics laws in field of chemical and physical equilibria. [1c, 1e]	40%	

Relationship to Program Student Outcomes (Out of 100%)										
a	b	c	d	e	f	g	h	i	j	k
16.67	5.56	20		31.11	2.50		8.33	8.33	2.50	5

Evaluation	
Assessment Tool	Weight
First Exam	30%
Second Exam	30%
Final Exam	40%

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