



The Hashemite University  
Faculty of Science  
Course Outline

<b>Department:</b> Chemistry.	
<b>Year :</b> 2018/2019	<b>Semester :</b> <i>Second Semester</i>

<b>Course Information</b>	
Course Title	<b>GENERAL CHEMISTRY I</b>
Course Number	1701081138. (110103101)
Section	7
Pre-requisite	----
Course Credits	3.
Designation	Compulsory.
Course Time	Mon., Wed: 9.30 – 11.00
Instructor	<b>Dr. Ayman A. Issa.</b>
Office Location	Chem. 208.
Office Hours	Sun, Tue, Wed: 11:00-12:00
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**Course Description (Catalog):**

The course is intended to illustrate the basic principles of modern chemistry. It includes the following topics: Atomic and molecular weights and stoichiometry, the mole concept, the atomic properties based on electronic structures, different types of chemical bonding and molecular shapes, acids, and bases, balancing chemical equations, metathesis reactions, gas laws, properties of gases and their reactions.

<b>Text Book and References</b>	
Text Book	Chemistry – Raymond Chang – 2010 – 10 <sup>th</sup> Ed. <b>Or</b> General Chemistry 1 – Raymond Chang – 2012 - Custom Ed. of Chang; Chemistry 6 <sup>th</sup> Ed.
Reference(s)	Any library book related to general chemistry.

<b>Grading Plan</b>		
Assessment Type	Expected Date	Weight
1 <sup>st</sup> Exam	17/2/2019 – 28/2/2019	30%
2 <sup>nd</sup> Exam	31/3/2019 – 11/4/2019	30%
Final Exam	18/4/2019 – 2/5/2019	40%

**Major Topics Covered:**

<b>Course Contents</b>		
Chapter	Topics	Contact Hours
1	Introduction	4
3	Stoichiometry	7
4	Reactions in Aqueous Solutions	8
5	Gases	6
7	The Electronic Structure of Atoms	7
8	The Periodic Table	3
9	Chemical Bonding I: The Covalent Bond	4
10	Chemical Bonding II: Molecular Geometry and Hybridization of Atomic Orbitals	5
		Total (44)



❖ **Course Objectives:**

The course aims at studying the basic principles of chemistry, which will construct the base for higher chemistry courses and will supply the basic knowledge needed for this science.

❖ **Specific Outcomes of Instruction (Course Learning Outcomes):**

After completing this course, the students will be able to:

	Course Learning Outcomes (CLO)	(SO*)
<b>CLO1</b>	Discuss and perform calculations regarding unit conversions and significant figures.	a, e
<b>CLO2</b>	Write and balance chemical equations, name inorganic compounds and ions and describe the properties of the main group elements.	a, i
<b>CLO3</b>	Carry out chemical calculations, including mass relations in chemical reactions, limiting reagent and reaction yield calculations, and calculations involving reactions taking place in solution.	a, e, h
<b>CLO4</b>	Understand the concept of oxidation-reduction, calculate oxidation numbers, and balance redox reactions.	a, e
<b>CLO5</b>	Apply the ideal gas law in solving problems involving the gas phase.	a, e, h, i
<b>CLO6</b>	Predict the electronic structure of atoms and ions from quantum theory, and relate the position of an element in the periodic table to its electronic structure and to the physical and chemical properties of the elements.	a, e, h
<b>CLO7</b>	Describe the principles of chemical bonding and write Lewis structures	a, e, i
<b>CLO8</b>	Predict the geometry of the electron pairs and the shape of molecules using VSEPR theory, predict bond polarity and molecular dipoles	a, c, h
<b>CLO9</b>	Describe the valence bond theory, predict the hybridization of atoms in molecules, and describe bonding in molecules with single, double and triple bonds in terms of $\sigma$ and $\pi$ bonds, and delocalized molecular orbitals	a, c, e, h

\*(SO) = Student Outcomes Addressed by the Course.

❖ **Student Outcomes (SO) Addressed by the Program:**

#	Outcomes Description	Contribution
	Chemistry Student Outcomes	
(a)	an ability to apply knowledge of mathematics, science, and applied sciences	H
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	--
(c)	an ability to formulate or design a system, process or program to meet desired needs	L
(d)	an ability to function on multidisciplinary teams	--
(e)	an ability to identify and solve applied sciences problems	H
(f)	an understanding of professional and ethical responsibility	M
(g)	an ability to communicate effectively	L
(h)	the broad education necessary to understand the impact of solutions in a global and societal context	H
(i)	a recognition of the need for, and an ability to engage in life-long learning	H
(j)	a knowledge of contemporary issues	H
(k)	an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	--

H = High, M = Medium, L = Low

**General Notes: (Attendance Policy)** students are expected to attend every class and arrive on time in compliance with HU regulations. In case you find yourself in a situation that prevents you from attending class or exam, you have to inform your instructor. If you miss more than 6 classes for Sunday, Tuesday, or Thursday lectures, you cannot pass the course. Makeup excuses will be accepted only for very limited justified cases, such as illness and emergencies. Missing an exam without an acceptable excuse will result in a grade of zero. Changing your section without informing your instructor is not accepted at all.

*Good Luck!*

*Dr. Ayman Issa*