



Philadelphia University
Faculty of Science
Department of Basic Sciences
Spring semester, 2008/2009

Course Syllabus

Course Title: Principles of General Chemistry	Course code: 212099
Course Level: 1	Course prerequisite (s)
Lecture Time: 3:10-4:00	Credit hours: 3

Academic Staff

Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address
Dr. Safwan Obeidat	Assistant Prof.	Faculty of Science (1018)	11-12 S, Tu, Th 10-11 M, W	Sobidat@Philadelphia.edu.jo

Course module description:

This module aims to cover the basic principles of general chemistry, which will help students to understand the general chemistry Courses Chem 101 and 102.

Course module objectives:

This course presents a basic introduction to chemical concepts and the development of stoichiometric principles. It also provides the student with a fundamentals in chemical information and an understanding of the need for theory, the concepts to electronic structure, and chemical bonding. Finally it will introduce the general concepts in organic chemistry.

Course/ module components

- **Books (title, author (s), publisher, year of publication)**

Text book:

Title: General Chemistry, The essential concepts, 9th edition

Author : Raymond Chang

Publisher: Mc Graw Hill 2007

ISBN: 0-07-241067-1

- **Support material (s) (Handouts, models).**

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, debates, etc.

Learning outcomes:

- Knowledge and understanding
 - Have an understanding of basic chemical principals (mainly definitions and basic calculations)
 - Understand the acid base titrations and the calculations based on these types.
- Cognitive skills (thinking and analysis).
To identify and solve problems. work with given information and handle basic calculations based on chemical equations. And ability to differentiate between elements and molecules, acids and bases, etc....
- Communication skills (personal and academic).
Encourage the students to be self starters (creativity, decisiveness, initiative) and to finish the chemical problems properly (flexibility, adaptability). Also to improve general performance of students through the interaction with each other in solving different chemical problems.
- Practical and subject specific skills (Transferable Skills).
Gaining knowledge and experience of working with relevant modern laboratory equipment.

Assessment instruments

- Short reports and/ or presentations, and/ or Short research projects
- Quizzes.
- Home works
- Final examination: 50 marks

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
First examination	20
Second examination	20
Final examination: 50 marks	50
Quizzes, Home works	10
Total	100

Documentation and academic honesty

- Documentation style (with illustrative examples)

APA Style.

Example: Natarajan, R., & Chaturvedi, R. (2003). *Geology of the Indian Ocean Floor*. Hartford, CT: Merganser University Press

- Protection by copyright
- Avoiding plagiarism.

Course/module academic calendar

Week	Basic and support material to be covered
(1)	Basic Concepts: Matter, Energy and Life, SI units
(2)	measurements (Mass, length, and Volume) and significant figures
(3)	Stoichiometry: Mole concept ,measuring moles of atoms and molecules ,percentage composition, formulas.
(4)	Chemical reactions, Reactions in solution and their stoichiometry, Reactions of elements and Reactions of Compounds.
(5)	The Periodic Table: Periodic table and periodic law, metals and nonmetals and their properties
(6) First examination	The electronic Structure: Modern atomic theory, masses of atoms, composition of atoms, Isotopes, atoms and light and Octet Rule.
(7)	Nuclear Chemistry: General Concepts of Nuclear Chemistry
(8)	Chemical bonding: Covalent Bonds Ionic bonding, Properties of ionic compounds
(9)	, Chemical Formulas, Molecular compounds,
(10)	Molecular Geometry: Drawing Lewis Structures, Hybrid Orbitals ,Multiple bonds ,Resonance structures, Shapes, Polar molecules, Properties of Molecular compounds.
(11) Second examination	Shapes, Polar molecules, Properties of Molecular compounds.
(12)	Gases: Gas Laws
(13)	Solutions: Mixtures, Solubility, Molarity, Osmosis and Osmotic Pressure.
(14)	Acids, Bases, and Salts: Bronsted-Lowry acids and bases ,Definition of the acid and the base,

(15)	Measuring Acidity in Aqueous Solutions: pH and its calculations
(16) Final Examination	Buffer solution

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Module references

Books

1. Analytical Chemistry: Principles and Techniques.
By Larry G. Hargis.(editors) (December 17, 1996),Publisher: Pearson Education
POD; Facsimile edition ISBN: 013033507X
2. Quantitative Chemical Analysis
By Daniel C. Harris, 7th edition 2007, W. H. Freeman and Company.
ISBN 0716728818.

Journals

Journal of analytical chemistry

Websites

<http://101science.com/>

