



Course Specifications

General Chemistry PCHM-124

Course Title:	Introduction to General Chemistry	
Course Code:	PCHM 124	
Program:	First Common Year (Medical Track)	
Department:	First Common Year Deanship	
College:	First Common Year Deanship	
Institution:	Majmaah University	

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A. Course Identification

1. Credit hours: 2 hr
2. Course type
a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 2 / First year
4. Pre-requisites for this course (if any): Nil
5. Co-requisites for this course (if any): Nil

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	36	80 %
2	Blended		
3	E-learning	9	20 %
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	
3	Tutorial	
4	Others (exercises, practices and exams)	15
	Total	45

B. Course Objectives and Learning Outcomes

1. Course Description

This course is an introductory chemistry course designed to prepare students for college level chemistry courses. The course introduces:

- concepts of basic chemistry
- Explain interested examples of how chemistry applies to life
- Describe the matter and its classification, states, physical and chemical properties
- Study the measurements and dimensional analysis in solving problems
- Study atoms, molecules and ions
- Describe the mass relationships in chemical reactions
- Study the chemical bonding
- Study acids and bases

This Course is designed for students who have an interest in nursing, nutrition, environmental science, food science, and a wide variety of other health-related professions. The content of this book is designed for an introductory chemistry course with no chemistry prerequisite, and is suitable for either a two-semester sequence or a one-semester course.

2. Course Main Objective

The purpose from this course is to relate the fundamental concepts of general chemistry to the world around us, and in this way illustrate how chemistry explains many aspects of everyday life.

* In this course we will follow two guiding principles

- Use relevant and interesting applications for all basic chemical concepts.
- Present the material in a student friendly fashion using bulleted lists, extensive illustrations, and step-by-step problem solving.

* Keep abreast of developments in scientific research through a review of the latest research in the field of chemistry and linking of information theory in practical side through research published in this area in the form of scientific research useful.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Identify the main concepts in the course like: a- states, properties, and changes of matter. b- Types of matter. (pure, mixtures, solutions). c- SI units and significant figures d- Atom structure, isotopes. e- Electronic configuration, Principal Shells, subshells (s, p, d, and f), valance shell, valance electrons and valance. f- The periodicity in periodic table.	
1.2	a- Classify types bonding as ionic or covalent , types of ions as cations or anions , and types of Compounds as Ionic or molecular\ b- and Identify compounds and molecules properties (physical and chemical) c- Identify the lone pairs and bonding pairs in Lewis structure of molecules d- Predict the molecular shapes according to VESPR Theory.	

CLOs		Aligned PLOs
1.3	<p>a- Write balance Chemical equation, and Classify their types (addition, decomposition, ...etc)</p> <p>b- Determine Redox reaction (oxidation and reduction), reducing and oxidizing agents, oxidation state and, their applications.</p> <p>c- Define concepts like moles, limiting reactants, and % yield</p> <p>d- Determine whether molecule is soluble, polar, acid or base.</p>	
1...		
2	Skills :	
2.1	<p>Analyze the information to give the right solution and be able the following:</p> <p>a- Determine the correct No. of significant figures in the results of mathematical process.</p> <p>b- Express large and small numbers using scientific notation.</p> <p>c- Convert between units using suitable converting factor.</p> <p>d- Convert between temperature scales.</p> <p>e- Use density as converting factor.</p> <p>f- Determining chemical and physical properties of elements according to their position in periodic table and/or their electronic configuration.</p> <p>g. Determine atomic, mass, protons, neutrons and electrons number from isotope symbol.</p> <p>h. calculate atomic mass from isotopic masses.</p> <p>i. Write electron configuration for atoms based on their atomic number, or position in periodic table.</p>	
2.2	<p>Interpret and conclude acquisition of knowledge through the analysis of information like:</p> <p>a- Convert the chemical formula of compounds and molecules to Chemical name, and vice versa.</p> <p>b- Draw Chemical structures using Lewis Rules.</p> <p>c- Write resonance structures.</p> <p>d- Predict the shapes of molecules using chemical information like Lewis structure, total number of electron groups around the central atom.</p> <p>e. Determine whether the polar bonds add together to form a net dipole moment.</p>	
2.3	<p>Use the principal chemical laws (conservation and stoichiometric laws) to make the following:</p> <p>a- Write a balance chemical equation (for example: combustion reaction, redox reaction, etc.) by using of correct chemical formula of reactants and products,</p> <p>b- Write the half oxidation and half reduction reaction and determining their components (reducing agent and oxidizing agent).</p> <p>c- Carry out mole –to- mole conversion between reactants and products in balance chemical equation.</p> <p>d- Cary out mass – to –mass conversion between reactants and products in balance chemical equation. .</p> <p>d- determining the factors that affect the solubility.</p> <p>e- Calculate the concentration as (mass percent, molarity ...etc) of chemical solutions.</p> <p>f- Use dilution equation in chemical calculation.</p>	
2...		
3	Values:	
3.1	Derive important information from the textbook and learn important terminology in English, in addition to use modern technology like searching in the Internet and computers to extract information	
3.2	use information and communication technology to complete assigned tasks search, collect, organize and interpret Chemical information from different databases and sources	
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction	3
2	Matter and Measurement	9
3	Atoms and periodic table	6
4	Ionic Compounds	6
5	covalent compounds	6
6	Chemical reactions	9
7	Solution	6
Total		45

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Identify the main concepts in the course	<ul style="list-style-type: none"> - Direct teaching through lecture - Presentation skills and diction through activities and duties to be presented as discussions - Teamwork through a related research work between a group of students - The application of problem-solving skills and decision-making - Open discussions 	<p style="text-align: center;">Pencil & Paper</p> <p style="text-align: center;">Home works.</p> <p>Test item types: short-term questions Multiple choice items</p> <p>Through : 1- First Mid-term exam Final exam</p>
1.2	Determine the bonding conditions, and the properties of compounds that produced as result of bonding.	<ul style="list-style-type: none"> -Direct teaching through lecture - Teamwork through a related research work between a group of students. - The application of problem-solving skills and decision-making 	<p>Pencil & Paper</p> <p>Test item types: short-term questions Multiple choice items</p> <p>Through : 1- Quizzes 2- 2nd Mid-term exam Final exam</p>
1.3	Identify the main components of chemical reaction, and the parameters of chemical	<ul style="list-style-type: none"> Teamwork through a related research work between a group of students - The application of problem-solving skills and decision-making - Open discussions 	<p>Pencil & Paper</p> <p>Test item types: short-term questions Multiple choice items</p> <p>Through : Final exam</p>
2.0	Skills		
2.1	Analyze the information to give the right solution	-Student participation in resolving the issues inside and outside the course	<p>Pencil & Paper</p> <p>Test item types: short-term questions 2-Open-ended answer items *Short answer</p>

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			*Essay and problem solving Through : 1- First Mid-term exam Final exam
2.2	Interpret and conclude acquisition of knowledge through the analysis of information	-Discuss with students some topics in the field of chemistry, explaining some of the scientific experiments on the theoretical foundation given to students	Pencil & Paper Test item types: short-term questions 2-Open-ended answer items *Short answer *Essay and problem solving Through : 1- 2 nd Mid-term exam Final exam
2.3	Use the principal chemical laws (conservation and stoichiometric laws)	To raise the attention of students by introducing some of the problems and contradictions and try to solve them	- Pencil & Paper Test item types: short-term questions 2-Open-ended answer items *Short answer *Essay and problem solving Through : 1- Final exam
3.0	Values		
3.1	Derive important information from the textbook and learn important terminology in English, in addition to use modern technology like searching in the Internet and computers to extract information.		The use of oral evaluation ,contribution and participation
3.2	use information and communication technology to complete assigned tasks search, collect, organize and interpret Chemical information from different databases and sources	Distribution of roles of students in groups such as appointment group's advisor	The use of oral evaluation ,contribution and participation
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Participation, Duties, Attendance	During semester	10%
2	Homework	During semester	5 %
3	Quizzes	During semester	5 %
4	First exam	7	20%
5	Second exam	12	20%
6	Final exam	18	40%
7

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Every teaching staff has to be available for the students for 2 hours 3 days a week.
- There will be a schedule for office hours of every staff member declared to the students.
- Contact mobile numbers and mails should be available to the students.
- Office hours are held in faculties' offices of staff members.
- Every teaching staff has an official web site for contact with his students on university gate :<http://faculty.mu.edu.sa>

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	General, Organic & biological Chemistry, by Janice Smith. McGraw Hill higher education, costume edition.
Essential References Materials	<ul style="list-style-type: none"> • Handout and Lecture notes. (Journals, Reports, etc)
Electronic Materials	<ul style="list-style-type: none"> • Suadi Digital library (SDL) https://sdl.edu.sa/ • Faculty member web sites http://faculty.mu.edu.sa E-learning on black board on university gate https://lms.mu.edu.sa/
Other Learning Materials	<ul style="list-style-type: none"> • Healthcare TV programs, • Healthcare websites.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> • Classrooms
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Data show, • Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	-----

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	indirect
Quality of learning resources	Students	indirect
Effectiveness of teaching and assessment	Students	indirect
Extent of achievement of course learning outcomes	Students	indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	