



Course Specifications

Course Title:	General Chemistry 1
Course Code:	CHM1101
Program:	All Chemistry tracks - Industrial Chemistry – Physics - Medical Physics – Biology – Microbiology – Mathematics- Environmental
Department:	Department of chemistry
College:	Faculty of Applied Science/
Institution:	Umm Al-qura University

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A. Course Identification

1. Credit hours:
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 1/ 1 st year
4. Pre-requisites for this course (if any): -
5. Co-requisites for this course (if any): -

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	
4	Others (specify)	
	Total	60

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.

2. Course Main Objective

The course introduces some basic principles of physical, organic and inorganic chemistry.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	Knowledge and Understanding	
1.1	Familiar with the International system of units	K1
1.2	Write the electronic configuration of different elements	K1

CLOs		Aligned PLOs
1.3	Familiar with the atomic structure	K1
1.4	List the factors affecting equilibrium position and equilibrium concentration.	K1
1.5	List the various types of chemical reaction	K1
1.6	Recognize and know which elements in the Periodic Table	K2
1.7	familiar with the terms hydrocarbons, organic compounds containing oxygen and nitrogen atoms	K2
2	Skills :	
2.1	Predict molecular formulas using empirical formulas and molecular masses.	S1
2.2	Explain trends in the Periodic Table as they relate to Atomic Size, Ionization Energy and Electron Affinity.	S1
2.3	Calculate the concentration of a solution from the volume and the mass, or moles, of solute	S1
2.4	Calculate the pH of acids and bases	S2
3	Values:	
3.1	Ability to communicate results of work to classmates.	V2
3.2	Communicate effectively with his lecturer and colleagues	V1

C. Course Content

No	List of Topics	Contact Hours
1	Units of measurements; SI- units, intensive and extensive properties, uncertainty in measurements (precision and accuracy). Introduction: Matter and measurements	2
2	Significant figures: Using significant figures in addition, subtraction, multiplication and divisions.	1
3	States of matter and measurement, molecules and molecular compounds.	2
4	The periodic table, electronic structure of atoms, simple periodic properties of the elements.	3
5	Stoichiometry, atomic and molecular weights.	3
6	The mole, simple quantitative calculations with chemical reactions.	4
7	Basics of chemical equilibrium.	6
8	Acids and bases.	3
9	Thermochemistry.	3
10	Chemistry of life: Organic and biological chemistry	3
Total		30

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	Familiar with the International system of units	<ul style="list-style-type: none"> Lectures Library visits Web-based study	Quiz. Exam. Class discussion.
1.2	Write the electronic configuration of different elements	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study	Quiz. Exam. Class discussion.
1.3	Familiar with the atomic structure	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study	Quiz. Exam. Class discussion.
1.4	Describe the mass relationships in chemical reactions	<ul style="list-style-type: none"> Lectures Library visits Web-based study 	Quiz. Exam. Class discussion.
1.5	List the factors affecting equilibrium position and equilibrium concentration.	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study 	Quiz. Exam. Class discussion.
1.6	List the various types of chemical reaction	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study 	Quiz. Exam. Class discussion.
1.7	Recognize and know which elements in the Periodic Table	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study 	Quiz. Exam. Class discussion.
1.8	familiar with the terms hydrocarbons, organic compounds containing oxygen and nitrogen atoms	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study 	Quiz. Exam. Class discussion.
2.0	Skills		
2.1	Predict molecular formulas using empirical formulas and molecular masses.	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study	Quiz. Exam. Class discussion.
2.2	Explain trends in the Periodic Table as they relate to Atomic Size, Ionization Energy and Electron Affinity.	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study	Quiz. Exam. Class discussion.
2.3	Calculate the concentration of a solution from the volume and the mass, or moles, of solute	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study	Quiz. Exam. Class discussion.
2.4	Calculate the pH of acids and bases	<ul style="list-style-type: none"> Lectures Scientific discussion Web-based study	Quiz. Exam. Class discussion.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.0	Values		
3.1	Demonstrate commitment to professional and academic values, and ethics in the field of chemistry	<ul style="list-style-type: none"> Lectures Scientific discussion 	Class discussion. Assignment activities
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Class activities, Attendances and Duties	Throughout the Term	10%
2	Mid-Term Exam (s)	Week 6-8	20%
3	Lab Activity and Final Exam on Lab	Throughout the Term	30%
4	Final Exam.(2 hours exam)	End of the Term	40%
5	Total	100%	

*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 :

- We have faculty members to provide counselling and academic advice.
- 2 hours per week as office hours are available for discussion with the students.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	General Chemistry, by Chang, 9th ed., 2007, MacGraw-Hill.
Essential References Materials	Steven S. Zumdahl, Susan A. Zumdahl, 9 th ed., 2009, New York.
Electronic Materials	Power point lectures.
Other Learning Materials	Course available online

2. Facilities Required

Item	Resources
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Item	Resources
<p>Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)</p> <p>Technology Resources (AV, data show, Smart Board, software, etc.)</p> <p>Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)</p>	<p>Classrooms. Providing hall of teaching aids including computers and projector.</p> <p>Room equipped with computer and projector and TV</p> <p>-----</p>

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students	<u>Indirect</u> (Online survey at the end of the semester (Program survey, Experience survey & course evaluation) .
Effectiveness of teaching	Faculty members	<u>Direct</u> (classroom observation using the Teaching Observation
Achievement of course learning outcomes.	Faculty members	<u>Direct</u> (60% of the students achieved $\geq 70\%$ of the degree assigned to the course learning outcome).
Assessment of faculty members	Department head	<u>Direct</u> (Performance Assessment of faculty <u>Indirect</u> (feedback from faculty and students).
Quality of learning resources	Students	<u>Direct</u> (feedback from faculty). <u>Indirect</u> (online survey at the end of the semester.
Effectiveness of teaching Strategies for Learning Outcomes.	Faculty members	<u>Direct</u> (Comments of course instructors regarding evaluation of teaching strategies for learning outcomes mentioned in course report).

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	Prof. Mohamed I. Awad
Reference No.	
Date	15.03.2022