

Kingdom of Saudi Arabia

The National Commission for

Academic Accreditation & Assessment



Course Specifications

General Chemistry 2

(402121-1)

Course Specifications

Institution: Umm Al-qura University	Date of Report: 2015
College/Department : Faculty of Applied Science / Chemistry Department	

A. Course Identification and General Information

1. Course title and code: General Chemistry 2 / 402121-2	
2. Credit hours: 2 (theoretical)	
3. Program(s) in which the course is offered: Chemistry	
4. Name of faculty member responsible for the course: Prof. Mohamed M. Al-Gurashi	
5. Level/year at which this course is offered: 2nd level/1st year	
6. Pre-requisites for this course (if any): - General Chemistry 1 (402101-5)	
7. Co-requisites for this course (if any)---	
8. Location if not on main campus: All campus (El-Abedyah, El-Zaher and Elaziziah)	
9. Mode of Instruction (mark all that apply)	
a. Traditional classroom <input type="checkbox"/>	What percentage? <input type="checkbox"/>
b. Blended (traditional and online) <input checked="" type="checkbox"/>	What percentage? <input type="text" value="100"/>
c. e-learning <input type="checkbox"/>	What percentage? <input type="checkbox"/>
d. Correspondence <input type="checkbox"/>	What percentage? <input type="checkbox"/>
f. Other <input type="checkbox"/>	What percentage? <input type="checkbox"/>
Comments:	

B. Objectives

1. What is the main purpose for this course?

By finishing of this course, the students will be able to discuss and explain:

- The atomic shells, their shapes and Bohr theory of hydrogen atom.
- Electronic structure and Lewis structures of different chemical compounds
- The valence shell electron pairs repulsion theory, molecular orbital theory and valence bond theory.
- The principle quantum numbers, classification of elements and properties of ionic and covalent compounds.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- Using different learning sources of the course, so that the students make use of more than one reference.
- The use of smart teaching halls for lectures.
- Encourage students to carry out reports in the field of general chemistry.

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached):

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
• Electronic structure – atomic shells and their shapes.	1	2
• Bohr theory of hydrogen atom.	1	2
• Principle quantum numbers.	1	2
• Properties of elements and the periodic table – classification of elements into periods and groups.	1	2

• Comparison between some properties of the elements inside the period such as; ionization energy, electron affinity, electronegativity and atomic size.	2	4
• Chemical bonds; their types and theories – Lewis symbols and structures.	1	2
• Molecular orbital theory – octet rule.	2	4
• Valence shell electron pairs repulsion theory.	1	2
• Valence bond theory.	1	2
• Properties of ionic and covalent compounds.	1	2
• Hybridization and its types	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	28	-		-		28
Credit	2	-		-		2

3. Additional private study/learning hours expected for students per week.

- Student spends 10 hrs in preparing reports related to general chemistry and their discussions.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Describe the atomic shells and their shapes.	• Lectures • Scientific	• Written mid-term and final exams
1.2	Write on classification of elements into		

	periods and groups.	discussion	• Long and short essays.
1.3	List the properties of the elements inside the period.	• Use the library to work duties and a small research on general chemistry.	
1.4	Memorize the valence shell electron pairs repulsion theory.		
1.5	Describe Bohr theory of hydrogen atom.	• Use of the Internet to carry out some reports on course subjects.	
2.0	Cognitive Skills		
2.1	Predict the type of hybridization in a chemical compounds.	• Lectures	• Periodic tests and assignments.
2.2	Explain Lewis structures of different chemical compounds.	• Scientific discussion	• Measuring the response to the assignments.
2.3	Compare between molecular orbital theory and valence bond theory.	• Library visits	
2.4	Estimate the principle quantum numbers of different chemical compounds.	• Web-based study	
3.0	Interpersonal Skills & Responsibility		
3.1	Demonstrate the properties of ionic and covalent compounds.	• Dividing students into groups to carry out collective scientific reports.	• Evaluate the results of collective works and duties as well as knowing the contribution of each individual through dialogue and discussion.
3.2	Develop the student's ability in self-reliance and responsibility.		
3.3	Operate in team work and accept his college's opinions.	• Periodic individual duties to develop the	

		skill of taking responsibility and self-reliance	• Assessment of individual tasks and duties to determine the student's ability to self-reliance.
4.0	Communication, Information Technology, Numerical		
4.1	Use computers and the international information network (the Internet) to perform calculations and to identify recent research relevant to decision sources.	<ul style="list-style-type: none"> • Visiting research centers. • The use of computers in the training room of the department. 	<ul style="list-style-type: none"> • Evaluation of the duties associated with the proper use of numerical and communication skills.
4.2	Perform mathematical calculations and data analysis.	<ul style="list-style-type: none"> • Using the internet for collecting data. 	<ul style="list-style-type: none"> • Web-based student performance systems • Individual and group presentations.
5.0	Psychomotor		
5.1	• Not applicable.		
5.2			

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Homework and activities.	--	10%
2	Midterm 1 Exam.	6	20%
3	Midterm 2 Exam.	12	20%
4	Final Exam.	16	50%
5	Total		100%

D. Student Academic Counselling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
 - Office hours: During the working hours weekly.
 - Academic Advising for students.
 - Availability of Staff members to provide counselling and advice.

E. Learning Resources

1. List Required Textbooks
 - Inorganic Chemistry Catherine Housecroft and Alan G. Sharpe, 4th ed. Pearson, 2012.
2. List Essential References Materials (Journals, Reports, etc.)
 - D. A. Mc Quarrie, J. D. Simon. Physical Chemistry: A Molecular Approach. University Science Books, 1997.
 - R. L. DeKock, H. B. Gray, Chemical Structure and Bonding. University Science Books, 1989.
 - J. D. Lee, Concise Inorganic Chemistry, 5th ed., Wiley-Blackwell, 1998.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
 - H. B. Gray. Chemical Bonds: An Introduction to Atomic and Molecular Structure, University Science Books, 1994.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
 - <http://www.chemweb.com>
 - <http://www.sciencedirect.com>
 - <http://www.rsc.org>
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. : - **Not required.**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- Equipped lecture halls.

2. Computing resources (AV, data show, Smart Board, software, etc.)

- Room equipped with computer and data show and TV.

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

- No other requirements.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Complete the questionnaire evaluation of the course each semester.

2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- Preparation of a course report and study of the results of the students to give us indication about the planned outputs and the extent to which student's benefits.

3. Processes for Improvement of Teaching

- Exchange of experiences internal and external.
- Application of e-learning.
- Review of strategies proposed.
- Providing new tools for learning.

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Check marking of a sample of exam papers, or student work.
- Exchange corrected sample of assignments or exam basis with another staff member for the same course in other faculty.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Consult other staff of the course.

- Hosting a visiting staff to evaluate of the course.
- Workshops for teachers of the course.
- Periodic review of the contents of the syllabus and modify the negatives.

Faculty or Teaching Staff: Prof. Mohamed M. Al-Gurashi

Signature:

Date Report Completed: 2015

Received by: Dr. Hatem Altass Department Head

Signature: *Mohamed M. Al-Gurashi*

Date: _____

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