



جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية الآداب
Faculty of Arts



فكر حضاري وحوار متمدن
Civilized Thought ... Civilized
Dialogue

"عراقة وجودة"
"Tradition and Quality"

Course Plan for Bachelor program - Study Plan Development and Updating Procedures / Department of Basic Sciences	QF04/0408-4.0E
---	----------------

Study Plan No.	2021–2022		University Specialization		Bachelor of Pharmacy	
Course No.	0420821		Course Name		General Chemistry Laboratory	
Credit Hours	1		Prerequisite *Co-requisite		General Chemistry for Pharmacy	
Course Type	☐ Mandatory University Requirement	☐ University Elective Requirement	☒ Faculty Mandatory Requirement	☐ Support Course Family Requirements	☐ Mandatory Requirement	☐ Elective Requirement
Teaching Style	☐ Full Online Learning		☐ Blended Learning		☒ Traditional Learning	
Teaching Model	☐ 1 Synchronous: 1 Asynchronous		☐ 1 Face to Face: 1 Asynchronous		☒ 1 Traditional	

Faculty Member and Study Divisions Information (to be filled in each semester by the subject instructor)

Name	Academic Rank	Office No.	Phone No.	E-mail	
Office Hours (Days/Time)	Sunday, Tuesday, Thursday ()		Monday, Wednesday ()		
Division Number	Time	Place	Number of Students	Teaching Style	Approved Model
				Traditional Learning	1 Traditional

Brief Description

This course complements and reinforces the theoretical knowledge gained in the General Chemistry for Pharmacy course. It also provides students with the opportunity to explore chemical concepts—such as qualitative and quantitative analysis, stoichiometry, volumetric analysis, and thermochemical changes—in a practical laboratory setting, in accordance with established health and safety regulations.

Learning Resources

Course Book Information (Title, author, date of issue, publisher ... etc)	Laboratory Manual for General Chemistry, Al-Zaytoonah University of Jordan
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	1. Chemistry in the Laboratory, James M. Postma (California State University, Chico), Julian L. Roberts (University of Redlands), Anne Roberts, 8th edition, 2017. 2. Chemistry, The Central Science, Brown, Le May, Bursten Prentice Hall, 14th edition (2017). 3. Chemistry, by Raymond Chang, Kenneth Goldsby, 12th edition, AP student edition, 2016.
Supporting Websites	-



جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية الآداب
Faculty of Arts



فكر حضاري وحوار متمدن
Civilized Thought ... Civilized
Dialogue

"عراقة وجودة"
"Tradition and Quality"

Course Plan for Bachelor program - Study Plan Development and Updating Procedures / Department of Basic Sciences				QF04/0408-4.0E
The Physical Environment for Teaching	☐ Classroom	☒ Labs	☒ Virtual Educational Platform	☐ Others
Necessary Equipment and Software	Moodle			
Supporting People with Special Needs	-			
For Technical Support	E-Learning & Open Educational Resources Center. Email: ellearning@zuj.edu.jo ; Phone: +962 6 429 1511 ext. 425/362.			

Course learning outcomes (K= Knowledge, S= Skills, C= Competencies)

No.	Course Learning Outcomes	The Associated Program Learning Output Code
Knowledge		
The student should be able to:		
K1	Identify common laboratory glassware and equipment.	MK1
K2	Recognize standard safety protocols during experiments.	MK1
Skills		
The student should be able to:		
S1	Interpret chemical observations to relate them to the types of chemical reactions occurring.	MS4
S2	Calculate the empirical formula of a compound from experimental mass by applying stoichiometric analysis to measured mass changes.	MS4
S3	Apply stoichiometric principles to identify the limiting reactant in a chemical reaction and calculate the theoretical yield from the measured amounts of reactants.	MS4
S4	Analyze quantitatively the titration data obtained from volumetric analysis.	MS4
S5	Analyze how changes in experimental conditions influence the accuracy and reliability of results.	MS4
Competencies		
The student should be able to:		
C1	Not applicable.	



جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية الآداب
Faculty of Arts



فكر حضاري وحوار متمدن
Civilized Thought ... Civilized
Dialogue

"عراقة وجودة"
"Tradition and Quality"

Course Plan for Bachelor program - Study Plan Development and Updating Procedures / Department of Basic Sciences	QF04/0408-4.0E
---	----------------

Mechanisms for Direct Evaluation of Learning Outcomes

Type of Assessment / Learning Style	Fully Electronic Learning	Blended Learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm Exam	30%	30%	30%	0%
Participation / Practical Applications	0%	0%	30%	60%
Asynchronous Interactive Activities	30%	30%	0%	0%
Final Exam	40%	40%	40%	40%

Note 1: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

Note 2: According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).

Schedule of Simultaneous / Face-to-Face Encounters and their Topics

Week	Subject	Learning Style*	Reference **
1	Introduction and Laboratory Check-in		
2	Instructions and Laboratory Equipment	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 1–7
3	Measurements and Chemical Observation	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 8–11
4	Stoichiometry (I): Determination of an Empirical Formula of an Anhydrous Salt	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 12–15
5	Stoichiometry (II): Determination of an Empirical Formula of a Hydrate	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 16–22
6	Limiting Reactant	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 23–28
7	Volumetric Analysis (I): Acid-Base Titrations	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 29–35



فكر حضاري وحوار متمدن
Civilized Thought ... Civilized
Dialogue

جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية الآداب
Faculty of Arts



"عراقة وجودة"
"Tradition and Quality"

Course Plan for Bachelor program - Study Plan Development and Updating Procedures / Department of Basic Sciences	QF04/0408-4.0E
---	----------------

Week	Subject	Learning Style*	Reference **
8	Volumetric Analysis (II): Redox Titrations	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 36–40
9	Chemical Equilibrium	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 41–45
10	Thermochemistry: Determination of ΔH_f for MgO	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 46–52
11	Spectrophotometric Determination of the Solubility of $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	pp. 53–63
12	Determination of an Unknown (I)	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	
13	Determination of an Unknown (II)	Laboratory discussion, Laboratory demonstration, Laboratory experiment, group work	
14	Laboratory Check-Out		pp. 426–444
15, 16	Final Exam		

* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.

Schedule of Asynchronous Interactive Activities (in the case of e-learning and blended learning)

Week	Task / Activity	Reference	Expected Results
-	-	-	-