



AMMAN - JORDAN

المستوى الذهبي

جامعة كل العرب

**Course Syllabus**  
**Faculty of Arts and Science**  
**Academic Department Chemistry**  
**Academic Year 2021/2022 Semester: Second**

<b>Course Title :</b>	Research Project in Chemistry
<b>Course No. :</b>	1722490
<b>Prerequisite :</b>	.....
<b>Concurrent :</b>	.....
<b>Department :</b>	Chemistry
<b>Coordinator :</b>	
<b>Mode of Instruction</b>	<b><u>On-Campus Learning</u></b> - 3 hours in-Lab (Synonym) learning

**\* Instructor:**

Lecturer	Office Phone	Room No.	Office Hours	E-mail

**Course Description**

This course aims to hone the skills and abilities of the students required to conduct scientific research through application and laboratory practice of what the student has learned in different courses coherently not separate for all the concepts studied by the students during their whole undergraduate years. In order to insure an optimum performance level of the educational process in the preparation of cadres specialized and capable of dealing and solving problems related to the community and the surrounding environment, and to maximize the benefits from the graduation research project

**Intended Learning Outcomes**

Upon the completion of the course, this module should lead to the following learning outcomes:

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رمز النموذج: UF 28 /2

رقم القرار 24 / 233

تاريخ الاعتماد 2021/10/18



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### A. Knowledge and Understanding (Student should):

A1	Identify the fields of interests in chemistry for choosing the topic of research project.
A2	Define background research history of topic of interest.

### B. Cognitive and Intellectual Skills (Student should):

B1	Apply the method(s) of solution on the problem.
B2	Compare between the different method(s) of the problem.
B3	Analyze the obtained results.
B4	Suggest an appropriate chemical approach(s) to solve the problem of the project.

### C. Subject Specific Skills (Student should):

C1	Cooperate with others in choosing the suitable method of solution.
C2	Contribute with others in research work.
C3	Bear the responsibility for own and group learning.

### D. Communication Information Technology, Numerical

D1	Communicate with each other and with their instructors via the IT, e.g. Internet.
D2	Use symbolic software to develop simple programs to solve some numerical problems.

### E. Psychomotor

E1	Manipulate scientific instruments and methods.
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### Program Learning Outcomes (PLOs):

1.1	Describe the fundamentals of chemistry including structure, reactivity and properties of chemical substances, different situation of reaction and the states of matter.
1.2	Construct essential facts, principles and theories across the four principal areas of chemistry, i.e. analytical, organic, inorganic and physical.
2.2	Explain concepts, principles and determine the efficiency of chemical systems by applying mathematical expressions



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2.3	Analyze chemical and spectral data to identify and confirm chemical structures as well as determine chemical composition
3.1	Demonstrate adequate life-long learning skills
3.2	Collaborate effectively with other people in a team.
3.3	Select appropriate techniques and procedures for chemical synthesis and analysis.
4.1	Demonstrate information technology skills, especially in the areas of information retrieval, literature searching and use of library databases
4.2	Communicate effectively both orally and in writing with professionals and/or lay audience
4.3	Interpret data derived from laboratory observations and measurements in terms of their significance and the theory underlying them.
4.4	Employ computational software's and data- processing skills in handling of chemical information and analysis of chemical data
5.1	Assemble and use properly chemistry experimental setups

Course Learning Outcomes Alignment Matrix

PLO	A1	A2	B1	B2	B3	B4	C1	C2	C3	D1	D2	E1
1.1	√											
1.2		√										
2.2			√		√							
2.3				√		√						
3.1							√		√			
3.3								√				
4.1										√		
4.2											√	
4.3										√		
4.4											√	
5.1												√



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**Course Contents and Schedule**

Week	Day and Date	Topics to be covered	Method of instruction	CLOs	PLOs
1	6 hours /week	Case study, Modeling	Discussions	A1 A2	1.1 1.2
2	6 hours /week	Case study, Modeling	Discussions	A1 A2	1.1 1.2
3	6 hours /week	Case study, Modeling	Discussions	B1 B2	2.2 2.3
4	6 hours /week	Case study, Modeling	Discussions	B3 B4	2.2 2.3
5	6 hours /week	Case study, Modeling	laboratory practice	3.1 3.3	C1 C2
6	6 hours /week	Case study, Modeling	laboratory practice	3.1 3.3	C1 C3
7	6 hours /week	Case study, Modeling	laboratory practice	3.1 3.3	C1 C3
8.	<b>Oral presentation, Peer assessment</b>				
9	6 hours /week	Case study, Modeling	laboratory practice	4.1 4.2	D1 D2
10	6 hours /week	Case study, Modeling	laboratory practice	4.3 4.4	D1 D2
11	6 hours /week	Case study, Modeling	laboratory practice	4.1 4.2	D1 D2
12	6 hours /week	Case study, Modeling	laboratory practice	4.3 4.4	D1 D2
13	6 hours /week	Case study, Modeling	Practical experimentati on	5.1	E1
14	6 hours /week	Case study, Modeling	Practical experimentati on	5.1	E1
15					
16.	<b>Final Project</b>				



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### Grading Plan and Assessment Tools

Assessment Tools	Weights	Due date
Mid-term	.....	.....
Assignments	.....	.....
Quizzes	.....	.....
Inter active lectures	.....	.....
Group Work	.....	.....
Presentation	30	TBA
Reports	.....	.....
Project	30	TBA
Case-Study	.....	.....
Final Exam	40	.....

### Supplementary Reading

#### Textbook:

- Kothari, C. R. (1990) Research Methodology: Methods and Techniques. New Age International Publishers.

#### References:

- The available related materials, textbooks, references, theses, journals, .... etc.
- University e-library and other digital libraries.
- Literature and other teaching aids
- Individual reading list will be established in the study plan.



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**Subject Coordinator**

**Signature:** -----

**Head of Curriculum Committee**

**Signature:** -----

**Department Head**

**Signature:** -----

**Faculty Dean**

**Signature:** -----

**Copy to:**

- Department Head.
- Head of Curriculum Committee.
- Course File.

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