

## Course Syllabus

1	Course title	<b>ADVANCED IN ENVIRONMENTAL CHEMISTRY</b>	
2	Course number	<b>0333715</b>	
3	Credit hours	3	
	Contact hours (theory, practical)	3	
4	Prerequisites/corequisites	--	
5	Program title		
6	Program code		
7	Awarding institution		
8	School	Science	
9	Department	Chemistry	
10	Course level	Graduate	
11	Year of study and semester (s)	2023-2024	
12	Other department (s) involved in teaching the course	Biology, civil engineering	
13	Main teaching language	English	
14	Delivery method	<input type="checkbox"/> Face to face learning <input checked="" type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	Online platforms(s)	<input type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....	
16	Issuing/Revision Date		

### 17 Course Coordinator:

Name: Safwan Mohammad Fraihat

Contact hours:

Office number:

Phone number: 22166

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**18 Other instructors:**

Name:

Office number:

Phone number:

Email:

Contact hours:

Name:

Office number:

Phone number:

Email:

Contact hours:

**19 Course Description:**

As stated in the approved study plan.

## 20 Course aims and outcomes:

### A- Aims:

The course has an emphasis on the development of skills such critical -thinking, problem-solving, analysis, and quantitative reasoning; these skills are essential to success in not just chemistry but also in other courses and many occupations

### B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to:

SLOs	SLO (1)	SLO (2)	SLO (3)	SLO (4)
SLOs of the course				
1 Students learn the basic principles of environmental chemistry				
2 They will be able to apply previous knowledge on analytical chemistry to environmental processes and samples				
3 Apply the interconnections between different sectors of the environment (soil, water, atmosphere)				
4 Understand the effect of human activities on the natural chemical processes.				



5	Explain the sources and the effects and types of different types of pollutants				
6					

## 21. Topic Outline and Schedule:

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	General information about the course						
	1.2	Introduction to Environmental Chemistry						Chapter 1
	1.3							
2	2.1	<b>Hydrosp here</b>						Chapter 2
	2.2	<b>water chemistry and cycles</b>						Chapter 2
	2.3	Water pollutants (Inorganic and organic)						Chapter 2

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
3	3.1	Principles of oxidation-reduction						Chapter 3
	3.2	Redox processes in the environment						Chapter 3
	3.3	Importance of electrochemical principles in environmental processes						Chapter 3
4	4.1	Interactions between different types of phases solid, liquid and gas						Chapter 4
	4.2	Applying solubility principles in different environmental phases, formation of sediment						Chapter 4

	4.3	Principles and types of colloids and sorptions						Chapter 4	
5	5.1	Introduction to Water pollutants						Chapter 6	
	5.2	Types of water pollutants inorganic						Chapter 6	
	5.3	Organic pollutants (detergents)						Chapter 6	
	5.4	Organic pollutants (pesticides) and others						Chapter 6	
	6.2	Atmospheric chemistry introduction						Chapter 8	
	6.3	Atmospheric pollutants properties and measurements						Chapter 8	
7	7.1	Particular matter, types						Chapter 9	
	7.2	Effects and						Chapter 9	

		measurements							
	7.3								
8	8.1	Toxicity Principles						Chapter 23	
	8.2	Common toxicants and effects						Chapter 23	
	8.3	Organic toxicants						Chapter 23	
9	9.1	Chemical analysis methods						Chapter 24	
	9.2	Spectrochemical, electrochemical, chromatographic						Chapter 24	
	9.3	Remote sensing and new methods of analysis						Chapter 24	
10	10.1								
	10.2								
	10.3								
<b>Week</b>	<b>Lecture</b>	<b>Topic</b>	<b>Student Learning Outcome</b>	<b>Learning Methods (Face to Face/Blended/ Fully Online)</b>	<b>Platform</b>	<b>Synchronous / Asynchronous Lecturing</b>	<b>Evaluation Methods</b>	<b>Resources</b>	
11	11.1	Research presentations							
	11.2								

	11.3								
12	12.1	Research presentations							
	12.2								
	12.3								
13	13.1	Research presentations							
	13.2								
	13.3								
14	14.1	Research presentations							
	14.2								
	14.3								
15	15.1								
	15.2								
	15.3								

## 22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark %	Topic(s)	SLOs	Period (Week)	Platform
Mid term Exam	25	Ch 1-4			
Quiz	20	Ch 5-8			
Presentation	15				
Final Exam	40	All Chapters			





## 23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

## 24 Course Policies:

- A- Attendance policies:
- B- Absences from exams and submitting assignments on time:
- C- Health and safety procedures:
- D- Honesty policy regarding cheating, plagiarism, misbehavior:
- E- Grading policy:
- F- Available university services that support achievement in the course:

## 25 References:

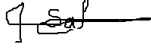
A- Required book(s), assigned reading and audio-visuals:

1. Environmental Chemistry, 10<sup>nd</sup> Edition, Manahan, Stanley E., Boca Raton: CRC Press LLC, 2017
2. Environmental Chemistry by Colin Baird and Michael Cann, (5<sup>th</sup> Edition), W. H. Freeman and Company, New York, 2012.

B- Recommended books, materials, and media:

Fundamental of Environmental Sampling and Analysis, Chunlong Zhang 2010. Publisher: John Wiley & Sons. DOI:10.1002/0470120681.

## 26 Additional information:

Name of Course Coordinator: Safwan Fraihat-----Signature:  --- Date: 13-11-2023
Head of Curriculum Committee/Department: ----- Signature: ----- ---
Head of Department: ----- Signature: ----- -
Head of Curriculum Committee/Faculty: ----- Signature: ----- -
Dean: ----- Signature: -----