جامعة البحرين
University of Bahrain
مركز ضمان الجودة والاعتماد الأكاديمي
Quality Assurance and Accreditation Center

Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب
Section Concerning the Student

1. Course Code:	CHEMY 458	**1. رمز المقرر:**
2. Course Title	Environmental Chemistry	**2. اسم المقرر:**
3. College:	Science	**3. الكلية:**
4. Department:	Chemistry	**4. القسم:**
5. Academic Program:	Bachelor of Science in Chemistry	**5. البرنامج الأكاديمي:**
6. Course Credits:	2-2-3	**6. عدد الساعات المعتمدة:**
7. Course NQF Level:	8	**7. مستوى المقرر وفقا للإطار الوطني للمؤهلات:**
8. Notional Hours:	118	**8. عدد الساعات الافتراضية:**
9. NQF Credits:	12	**9. عدد الساعات المعتمدة للمقرر وفقا للإطار الوطني للمؤهلات:**
10. Prerequisite:	CHEMY 312 and CHEMY 321	**10. المتطلب السابق للمقرر:**
11. Lectures Timing & Location:		**11. وقت المحاضرة ومكانها:**
12. General Mode of Teaching and Learning	Traditional تقليدي	**12. النمط العام للتعليم والتعلّم:**

13. Course Coordinator:		**13. منسّق المقرر:**
14. Course Instructor:		**14. مدرّس المقرر:**
15. Office Hours and Location:		**15. الساعات المكتبية ومكانها:**
16. Instructor's Email:		**16. البريد الإلكتروني لمدرّس المقرر:**
17. Academic Year:		**17. السنة الأكاديمية:**
18. Semester:		**18. الفصل الدراسي:**

19. Textbook(s):	**19. الكتب الدراسية للمقرر:**
20. References:	**20. المراجع:**
21. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.):	**21. مصادر التعلّم الأخرى (مثال: التعلّم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ....)**
22. Course Description (as published in the College Catalogue):	**22. توصيف المقرر (حسب ما ورد في دليل الكلية):**
Environmental chemistry; chemical processes impacting in the earth's atmosphere, water, and soil; basics of atmospheric chemistry (tropospheric chemistry, stratospheric chemistry); outdoor and indoor air pollution, greenhouse gases and global climate change; chemistry of natural waters and trace metal cycling; the sources, transport, and fate of persistent organic pollutants (POPs) in the environment; pharmaceuticals and their metabolites. Related practical work.	
23. Course Intended Learning Outcomes (3 to 5 CILOs):	**23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعلّمية):**
1. Identify the sources and routes of different pollutants in the environment.	
2. Explain the impacts of pollutants on the earth's atmosphere.	
3. Evaluate critically the issues and risks of climate change on natural ecosystems.	
4. Use specialist skills to apply analytical and spectroscopic techniques for the detection and removal of pollutants.	
5. Communicate effectively through writing comprehensive scientific reports independently by using experimental and library-retrieved data	
24. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain):	**24. أساليب التقييم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):**

Assessment التقييم	Type النوع	Percentage النسبة	Assessment Date تاريخ التقييم
Quiz	Individual فردي	10%	
2 Midterms	Individual فردي	25%	
Assignment	Pair ثنائي	10%	
Lab reports	Individual	15%	
Final Exam	Individual فردي	40%	
Total	**100%**		

25. Description of Topics Covered	**25. وصف الموضوعات التي ينبغي تناولها:**
Topic Title ***(e.g. chapter/experiment title)*** **الموضوع**	***Description*** **التفصيل**
Introduction to Environmental Chemistry	Overview of environmental chemistry and the importance of chemical processes in the atmosphere, water, and soil will be explained in detail.
Basics of Atmospheric Chemistry	Different atmospheric layers i.e. troposphere, and stratospheric chemistry will be explained.
Outdoor Air Pollution	Sources and types of outdoor air pollutants and impact on human health and the environment will be explained.
Indoor Air Pollution	Common indoor air pollutants and their effects on human health and strategies for mitigation will be explained
Greenhouse Gases and Global Climate Change	Overview of greenhouse gases, Mechanisms of climate change and global warming will be discussed.
Chemistry of Natural Waters	Composition and properties of natural waters Chemical processes affecting water quality will be explained.
Trace Metal Cycling in the Environment	Sources and behavior of trace metals Environmental impact and remediation strategies will be explained.
Fate of Persistent Organic Pollutants (POPs)	Sources and distribution of POPs Bioaccumulation and environmental persistence will be explained.
Emerging pollutants in the environment	Emerging pollutants in the environment will be discussed.
Pharmaceuticals and Their Metabolites	Introduction to pharmaceutical pollutants Environmental fate and potential impacts will be discussed.
Current environmental challenges and future perspectives	Current environmental challenges and future perspectives and remedial strategies will be explained.
Practical Work Application of theoretical knowledge through practical work.	Atmospheric Chemistry: Laboratory experiments demonstrating atmospheric chemical processes

Practical Work Application of theoretical knowledge through practical work.	Water Chemistry: Laboratory exercises on analyzing water samples and understanding chemical reactions in water systems
Practical Work Application of theoretical knowledge through practical work.	Pollution Monitoring: Fieldwork or lab exercises focused on monitoring and analyzing air and water pollution
Practical Work Application of theoretical knowledge through practical work.	Case studies exploring real-world environmental chemistry issues and solutions

26. Weekly Schedule | **26. الجدول الأسبوعي**

Week الأسبوع	Date التاريخ	Topics Covered الموضوعات المتناولة	CILOs مخرجات التعلُم للمقرر (CILOs)	Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم
1		Introduction to Environmental Chemistry	1	Traditional تقليدي
2		Basics of Atmospheric Chemistry	2	Traditional تقليدي
3		Outdoor Air Pollution	2	Traditional تقليدي
4		Indoor Air Pollution	2	Traditional تقليدي
5		Greenhouse Gases	2,3	Traditional تقليدي
6		Global Climate Change	2,3	Traditional تقليدي
7		Chemistry of Natural Waters	1	Traditional تقليدي
8		Chemistry of Natural Waters	1	Traditional تقليدي
9		Trace Metal Cycling in the Environment	1,2	Traditional تقليدي
10		Fate of Persistent Organic Pollutants (POPs)	2,3	Traditional تقليدي
11		Emerging pollutants in the environment	2	Traditional تقليدي
12		Pharmaceuticals and Their Metabolites	2,3	Traditional تقليدي
13		Current environmental challenges and future perspectives	2,3	Traditional تقليدي
14		Pollution Monitoring techniques	4	Traditional تقليدي
15		Case studies in environmental chemistry issues	4	Traditional تقليدي
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27. Academic Integrity Statement | **27. بيان النزاهة الأكاديمية**

Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, Anti-plagiarism Policies, and Students' Rights and Responsibilities Handbook. The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations.	يتعيّن على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقًا للوائح سلوك الطلاب والنزاهة الأكاديمية، سياسات مكافحة الانتحال، ودليل حقوق الطلبة وواجباتهم، المعمول بها في جامعة البحرين. يمكن لعواقب الغش والسرقة الأدبية والتعاون غير المصرح به وغيرها من أشكال عدم الأمانة الأكاديمية أن تكون خطيرة للغاية وسيتم التعامل معها وفقًا للسياسات واللوائح المذكورة آنفا.
28. Attendance and Absence Regulations	**28. نظام الحضور والغياب**
Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33) of Regulations of Study and Examination at the University of Bahrain.	يجب على الطلبة الالتزام بالحضور المنتظم للمحاضرات الصفية والعملية، حسبما تحدده طبيعة المقرر الدراسي، ووفقا للمادة (33) من نظام الدراسة والامتحانات في جامعة البحرين.