

Petra University		جامعة البترا
Faculty of arts and sciences		كلية الآداب والعلوم
Department of Chemistry		قسم الكيمياء

Course Syllabus

Year: 2019/2020

Semester: Second

Course No.	Course Title	Prerequisite	Co-requisite	Credit Hours Lectures / ECTS
101452	Environmental Pollution	101241	-	3/5 ECTS: European Credit Transfer System

Instructor Name	e-mail	Office No.	Office ext.	Office Hours
DR. ABDEL MNIM ALTWEIQ	aaltweiq@uop.edu.jo	7214	7214	Sun., Tues., Thurs.: 10 ⁰⁰ -11 ⁰⁰ and 13 ⁰⁰ – 14 ⁰⁰ (Sun.) Mon., Wed.: 8 ⁰⁰ - 09 ⁰⁰

Course Description	This course covers the fundamental concepts of the different types of environmental pollution and problems. The causes and results of water, air, nutrients, radial, thermal, noise and land pollution will be discussed. Special focus will be placed on ecology, greenhouse effect, global warming, acid rain, ozone depletion, environmental regulations and pollution control methods.
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Course Objectives

- To instill in students a sense of enthusiasm for environmental chemistry, an appreciation of its applications in different fields and to involve them in an intellectually stimulating and satisfying experience of learning and studying.
- to provide students with a multidisciplinary overview of contemporary pollution issues as a basis for critical appraisal of pollution in the environment.
- To generate in students an appreciation of the importance of environmental pollution areas in an industrial, economic, environmental and social context.
- to give the students an overview of air, noise, solid waste, hazardous waste, and also radioactive pollution including methods for prevention, control, measures and management of the pollution.

Course Intended Learning Outcomes (ILOs) and their Alignment with Program

ILOs:

Upon successful completion of this course, students are expected to achieve the following learning outcomes:

Course ILOs	Program ILOs	Teaching and Learning Method	Assessment Method
Knowledge (K)			
1. Explain the causes and result of the water, air, nutrients, radial, thermal, noise and land pollution include the universal environmental problems like greenhouse effect, global warming, acid rain, ozone depletion. 2. Mention methods for prevention, control, measuring and management of the pollution types include green chemistry principles.	K (1)	Lectures and discussion	First, second and final exams
Intellectual Skills (I)			
1. Write the chemical reactions that repress the harm and toxic effects of various pollutants on the environmental system (air, water, soil and human).	I (1)	Lectures and discussion	First, second and final exams
Transferable Skills (T)			
1. Problem-solving skills by developing the students' ability to understand the contribution of environmental science to debate on environmental issues.	T (2)		

Course Schedule:

Week	Topics	Topic Details
1	Introduction and definitions	Environment, Environmental chemistry, Environmental system, Pollution, pollutants
2-4	The effects of environmental pollution	The causes, results and reactions of different environmental problems such as climate change, greenhouse effect, Ozone layer depletion, acid rain and smog.
5, 6	Air Pollution	Background, types of pollutants, results and reactions
7, 8	Water pollution	Background, types of pollutants, results and reactions
9	Nutrient pollution	Background, types of pollutants, results and reactions

10	Radial pollution	Background, types of pollutants, results and reactions
11	Soil pollution	Background, types of pollutants, results and reactions
12	Noise Pollution	Background, types of pollutants, results and reactions
13	Environmental Protection	Environmental ethics, waste management, R-concept, recycling and green chemistry
14	Environmental legislation	Environmental organizations and protocols
15	Scientific trip	Ministry of Environment or other related places

Assessment Methods:

Assessment method	Grade
First exam	25
Second exam	25
Project (Recycling)	10
Final exam	40
Total	100

Alignment of Teaching and Learning Methods, Assessment and Course ILOs:

Teaching method	Contact Hours	Assessed through	ILOs numbers
Lectures and Discussions	3	In-class problems, Exams	K1, T2, I1

Learning References:

1- Textbook (s):
Environmental chemistry, 8 th ed., S. E. Manaham, 2007.
2- References:
Fundamentals of Environmental Pollution ; Krishnan Kannan , 363.73 K16 ,1997
Pollution , causes, effects and controls, 4 th ed., R. M. Harrison, 2004
3- Other Resources:
Course notes, data show facilities and Internet

Course Policies

- Attendance Policy: University regulations apply to attendance.
- Academic Honesty: Academic dishonesty is an unacceptable mode of conduct, and will not be tolerated in any form at University of Petra. All persons involved in academic dishonesty and plagiarism in any form will be disciplined in accordance with University rules and regulations.

Approved by	Name	Date	Signature
Head of Department		24.02.2019	

Faculty Dean	Prof. Rami Abdel-Rahem	26.02.2019	
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