Environmental Analysis (CHEM 453)

Second Semester 1441 H

BLDG 5, RM 012 2, Wednesday 10-11 am, 12-1 pm

**Instructor:** Dr. Adibah M. Almutairi

**Office hours:** (Sunday/Tuesday: 11:00 - 2:00 pm)

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**Course Resources**

* Hassan Al-Swaidan, Environmental Pollution Science, Khuriji Publisher, 1997.
* Gary D. Christian, P.K. Dasgupta, K.A. Schug, “Analytical Chemistry”, 7th Ed., John Wiley & Sons, 2013.
* https://fac.ksu.edu.sa/adeba/home: Course materials, grades, and related information and, or announcements are usually posted. Visit weekly and as often as possible.

**Course Goal**

To provide students with the basic principles of Environment and Pollution and to teach them to carry out some experiments in lab.

This course also prepares students to work in environmental chemistry and quality control labs.

**TOPICS**

|  |  |  |
| --- | --- | --- |
| **List of Topics (Lectures)** | **No. of Weeks** | **Contact hours** |
| Introduction to atmosphere, sources of air pollution and their controls, measurements of air pollution. | 1 | 1 |
| Hydrosphere, water cycle, sources of water pollution, water treatment. | 3 | 3 |
| Geosphere, soil pollutants, desertification, methods of natural pollution protection. | 3 | 3 |
| Medical pollutants, medical waste treatment and recycling. | 2 | 2 |
| Noise pollution, protection and control. | 1 | 1 |
| Pesticides pollution and their effect in environment, protection from chemical pesticides. | 1 | 1 |
| Solid and liquid wastes, waste treatment and recycling. | 2 | 2 |
| Radioactive pollution, management and control. | 2 | 2 |
| **Total** | **15** | **15** |

**ASSESSMENTS**

A student ID is required for each test. Only non-programmable, scientific calculators (TI-30X

series) will be allowed for usage in each test. Graphing calculators (such as Casio FX 9750, HP 50, and TI 83) and cell phones are not permitted and should not be used in any test. Failure to

comply will result in the award of an automatic “F”.

**In-Class Midterm Exams:** will be given during the regular class time in **RM 12**.

There will be no make-up test, **except for attendance at University events and legitimate**

**personal medical emergencies! Documentation must always be provided.**

Each in-course test is 50 minutes, and will each be worth 10 points. Proposed dates and

chapters tested on are shown below in the table:

|  |  |  |
| --- | --- | --- |
| **# Test** | **Date** | **Chapter** |
| 1st Midterm | 30/6/1441  | Air pollution/ water pollution |
| 2nd Midterm | 28/7/1441 | Soil pollution/ Medical pollution/ Noise pollution  |

Tests will be, multiple-choice format, conceptual questions taken from lectures, required course textbook and other course resource material(s).

**In-Class Final Exam:** The date of the in-class final exam will be announced later. Unlike the midterm exam, you will have 2 hours to complete the in-class final exam. The in-class final exam will cover all material discussed during the course. Students are expected to demonstrate a mastery of all major environmental chemistry concepts introduced during this course.

**The class project** makes up 10% of your grade: This is a two-part assignment. First, you will provide a written report that summarizes the sources, transport, and fates (including chemical reactions) of single pollutant (either organic or metal) released into our houses. The second part of this assignment will require a formal presentation of the written report during the final week of class. Students will be given 10 minutes for their presentation, with an additional 5 minutes for questions/discussion. Details of the expectations for the report and the presentation will be discussed in the first class.

**Course Grading**

|  |
| --- |
| **Grades** |
| 1st Midterm exam | 10 |
| 2nd Midterm exam | 10 |
| Project | 10 |
| Practical | 30 |
| In-class Final exam (cumulative) | 40 |
| **Total** | **100** |

***To Be Successful in CHEM 453!!***

**Do not lobby/negotiate/petition for any of the above grades! This is based on the fact that**

**each course grade is based only on the accumulated grades obtained throughout the**

**semester. There are extra or additional work for this course through the semester.**

However, students who attend classes and ***work* consistently from the first day**, usually have a

higher success rate in the course. So, get to lectures early, concentrate, stay focused, and pay

attention to the material being covered. It is therefore **strongly** recommended that all students

attend all lectures!! Being regularly absent or a habitual late-comer is not conducive to being

successful.

Make the effort to **understand** the various concepts/principles which are vital in learning chemistry. **Memorizing** is definitely not the solution!

Review all required material early and often, before each lecture and after each lecture - from the

very first lecture. Do not wait until the last few hours before a test to do the necessary revision.

If needed, please obtain assistance ASAP!! Therefore, make use of any/or all University and

Departmental resources provided to enhance students’ success.

Study/work groups, if utilized properly, may also prove helpful.