

CHEMISTRY 290: Environmental Chemistry

Course Information - Spring 2013

I. GENERAL INFORMATION

CHEM290 meets TR 9:30-10:45 AM, CON 367

Professor: Dr. Tammy DeRamos King

Science and Math Complex, Rm. 405; (508) 531-2115

Office hours: TBA and by appointment

Email/Phone/Website: c2king@bridgew.edu; (508) 531-2115

<http://webhost.bridgew.edu/c2king/>

Textbook: C. Baird and M. Cann, *Environmental Chemistry*, Freeman and Co.: New York, 2012 (5th ed.) ISBN-13: 978-1-4292-7704-4 or ISBN-10: 1-4292-7704-1

II. OVERALL COURSE INTENT AND OBJECTIVES

Course Description: CHEM 290 Environmental Chemistry (3 cr.) is a one-semester course covering the basic principles of aquatic chemistry, atmospheric chemistry, and the chemistry of the geosphere. Topics include energy and the environment, water pollution, water treatment, air pollution, photochemical smog, global warming, the ozone hole, soil and sediment contamination and/or an introduction to "green" chemistry. (*Prerequisite: CHEM132 or 142*)
Offered once in two years, Spring semester.

The course is designed for chemistry majors with Environmental Chemistry concentration who need an extensive knowledge of environmental chemistry issues. Chemical principles will be applied in the understanding of nature, sources, and prevention of air, water, and land pollution. The goals/objectives of the course are as follows:

Objectives: 1.) To understand the relationship between energy use and pollution; 2.) To introduce students to the various aspects of environmental chemistry; 3.) To apply chemical principles in the understanding, prevention, and treatment of environmental issues; and 4.) To use critical thinking and problem solving skills in the study of environmental issues.

III. GRADING SYSTEM

3 One-hour exams + 1 final exam	50 %
Field work and classroom or conference presentation	20 %
Homework	20 %
Class participation and attendance	10 %

Your course grade will be based on the following scale: A's (90+), B's (80-89), C's (70-79), D's (60-69), and F (<60).

Grading System (Cont.)

Exams will be based on topics covered in the lecture, assigned readings, and problem sets. Test questions will be a combination of two or more of the following: discussion, problem solving, matching type, definitions, short answers and fill in the blanks.

Homework will be based on chapter readings and lecture topics to help you retain the materials covered in the lecture or discussed in the assigned chapters. Thus, it is imperative that you keep a good study habit and to try to get help before you even fall behind. Although I post my office hours, you may seek help through email, phone, or even stopping by my office to see if I'm available outside of my office hours.

Field work and classroom or conference presentation: In lieu of two lecture meetings, you will be required to perform a field work (research topic will be announced on week 2) as a group. The study site will be restricted to the Bridgewater area. The result of this work will be presented as a poster (by the whole class) during the BSU Undergraduate Research Symposium in April or as Powerpoint presentation in class, but I heavily lean towards symposium presentation.

IV. CLASS POLICY

Attendance: ***Class attendance is mandatory!*** You are expected to arrive on time for class. Class attendance will be taken every meeting. You are also responsible for obtaining missed lecture notes and assignments. Each student is "allowed" three absences without penalty, after which 20 points will be deducted (on a scale of 0 to 100) per absence. Tardiness: Students who come in late will accumulate one absence for every 3 tardiness. *Students who are regularly absent will be asked to withdraw from the course.*

Class participation is strongly encouraged and will be graded on a scale of 0 to 100. Note that class participation means responding to questions that I ask in class during lecture-discussions. It may also include, to some extent, asking questions related to the topic being discussed.

Seating arrangements during an exam: You might be assigned specific seating during the exam, including the final. I reserve the right to decide on your seating arrangement during a given exam.

Exam makeup: A makeup exam will only be given if you have a valid excuse for your absence, provided that I have been notified within 24 hours of your absence and a written, supporting documentation (e.g. a doctor's note) of your absence has been provided soon after you come back to class. If you failed to provide me with valid documentation of your absence, a grade of zero will be assigned for the missed exam. Unless I decided otherwise, *you have until the following meeting to makeup for a missed exam*; otherwise a grade of zero will be assigned for that exam.

Class Policy (Cont.)

Late homework will be accepted up to one meeting following the deadline, but with a corresponding 20 to 30 % deduction. Homework not turned in one meeting following the deadline will be assigned a grade of zero.

While discussion of ideas related to an assigned problem is acceptable, copying one's work or copying each other either word for word or by rephrasing someone's statement will be considered a form of cheating, thus will be treated as an academic misconduct. I expect you to write your own ideas and responses to assigned problems as an individual, not as a group. At this point, I also expect you to know how to use quotations if a response is quoted from the text or another source, and to list that text or any other sources used, including those taken from internet sites, towards the end of your problem set. Likewise, if you derived the ideas/ responses from the text or another source, cite these references as well. In summary, ***homework that I have deemed identical or close to being identical will receive a grade of zero!*** Read the section below about academic integrity for more details.

Academic Integrity:

From the 2012-2013 Student Handbook:

At Bridgewater State University, academic honesty is expected of all students; plagiarism and cheating are not condoned and are subject to academic penalty, which may result in a failure for the course in which the violation took place. A violation may result in a reduced grade, suspension, or dismissal from the university.

Academic misconduct includes, but is not limited to, plagiarism, cheating, and dishonest practices.

For more information please read the university's policy on academic integrity at:
<http://www.bridgew.edu/Handbook/PoliciesProcedures/academicintegrity.cfm>

**CHEM 290 COURSE OUTLINE AND TENTATIVE SCHEDULE
Spring 2013**

Topics to be covered in sequence include: (Approximate length)	Chapter
1. Introduction to Environmental Chemistry (1/2 wk.)	
2. Air Pollution – Sources, Effects and Control (3 wks.)	3, 4
3. Greenhouse Effect and Global Climate Change (1 ½ wks)	5, 6
4. Ozone Depletion (1 wk.)	1, 2
5. Renewable Energy and Alternative Fuels (1 ½ wks.)	7, 8
6. Chemistry of Natural Waters; Water Pollution and Water Treatment (2 ½ wks)	10, 11
7. Toxic Heavy Metals (1 wk.)	12
8. Municipal Solid Waste; Soil and Sediment Contamination (2 wks.)	16

Exam dates: Please mark the following in your calendar.

- Exam 1 – Thursday, **February 21**
- Exam 2 – Tuesday, **March 26**
- Exam 3 – Thursday, **April 25**
- **Final – Thursday, May 9, 8:00-10:00 AM**

January	February	March	
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28 29 30	26 27 28 29 30 31	23 24 25 26 27 28 29	
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