Syllabus
Chem 270 – Environmental Chemistry
Fall 2006 – Marian College

Instructor: Dr. John A. Buben
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Office Hours: MW 2:30 – 3:30 pm; T 10:00 – 11:00 am
and by appointment (250 MH)

Lecture: MWF 11:00 – 11:50 am (310 MH)
Laboratory: Thurs. 8 – 10:45 am (353 MH)

Course Description: This course will focus on the chemistry of the atmosphere, water, and energy sources, and will survey the problems associated with chemical pollutants in our environment. The laboratory will help illustrate key principles related to the chemistry of the environment, and students will learn some analytical techniques that are used to detect and measure environmental pollutants.

Credit: 4 credit hours

Prerequisites: Che 152

Course Objectives: Upon completion of the course, students should understand the chemical processes at work in our environment, including:

1. Know the major sources and kinds of air pollutants and their impact on our environment.
2. Understand the chemistry which underlies the issues of ozone depletion, global warming, and acid rain.
3. Know the possible kinds of water pollutants found in municipal and rural water sources and understand the process of water purification.
4. Understand the important role that energy plays in our society and the associated negative impacts that conventional energy sources can have on the environment. Learn about the issues surrounding alternate energy sources.
5. Understand the potential negative interactions that various classes of chemicals have had on our environment.
6. Develop skills in laboratory experimentation and with analytical methods used to detect and quantify environmental pollutants.

Required Text: Chemistry of the Environment, second edition, by T.G. Spiro and W.M. Stigliani. Prentice-Hall, Inc. (2003).

Basis of Grading:

Midterm Exams (3-5)	45%
Laboratory Study/Reports	25%
Homework Assignments	15%
Final Exam	15%

Grading Scale:

A : 90%	B+ : 84%	C+ : 74%	D+ : 64%
A- : 87%	B : 80%	C : 70%	D : 60%
	B- : 77%	C- : 67%	

Course Outline: Key topics to be covered in the course include:

The atmosphere and its chemistry; common air pollutants in urban air; the depletion of the ozone layer; the impact of acid rain; global warming; the chemistry of water; water pollutants and municipal water purification; global energy usage; nuclear and renewable energy; problems associated with pesticide and fertilizer usage; hazards associated with toxic chemicals; laboratory procedures in environmental chemistry.

Laboratory Experiments:

During the semester we will conduct about ten experiments. The experiments will be designed to illustrate principals related to subject material covered in the classroom. Some experiments will involve the collection of samples from off-campus. Safe practices regarding transportation and sample collection are requested.

Exam Schedule: Dates of midterm exams will be announced approximately one week in advance.

Attendance:

Regular classroom attendance is expected. Repeated absence from classes and unexcused absences from an exam or laboratory session may result in a grade penalty.