



# CHEMISTRY & BIOCHEMISTRY

FLORIDA STATE UNIVERSITY



## CHM 4080/5086 - Environmental Chemistry I

### Course Description - Spring 2009

**Meetings:** T/Th, 8:00 – 9:15 AM, 213 HTL

**Course Description:** Application of chemical, geochemical, and biochemical principles to environmental issues. Topics include: introduction to planet earth; hydrology and geochemistry; evaluation of contaminants in surface water and ground water; quality assurance and quality control in environmental analysis; water treatment; toxic chemicals (metals and organics); toxicology, risk assessment and risk management; solid and hazardous waste management; air pollution, global warming and ozone depletion.

**Instructor:** William T. Cooper  
Department of Chemistry & Biochemistry  
415 DLC; 644-6875; [cooper@chem.fsu.edu](mailto:cooper@chem.fsu.edu)  
Office Hours; 11:00 – 12:00 Monday  
4:00 – 5:00 Tuesday  
2:00 – 3:00 Wednesday  
or by appointment (drop-ins welcome)

**Readings:** The readings for each week are assigned primarily from the course text (see Course Schedule): Principles of Environmental Chemistry, J.E. Girard, 2005.

Additional required readings from the scientific literature will be made available in a Course Notebook that will be kept in 411 DLC.

**Grading:** **CHM 5086:** 2 exams (60%), group project (20%), group discussions (20%).  
**CHM 4080:** 2 exams (80%), group project (20%).

**Grading Scale:**

90 – 100	A
75 – 89	B
60 – 74	C
50 – 59	D
< 50	F

**Group Project:** The group term project is an in-depth experience (a “practicum”) with an important issue or problem in environmental science. It will involve a single, highly focused topic, and will require the efforts of the entire group. For example, one such project might be to develop a Maximum Concentration Limit (MCL) for the ubiquitous pollutant methyl-t-butyl-ether in drinking water. The project represents a new approach to science education, **Problem Based Learning** (PBL). Each group member will be responsible for a defined part of the required work product, as well as contributions to the overall group effort.

**Group Discussions (CHM 5086 students only):** For graduate credit, CHM 5086 students will be required to lead a focused discussion of leading research papers on that week’s class subject. These discussions will occur on most Thursdays. Two to three graduate students will lead each discussion, which should begin with a brief PowerPoint summary (5-7 slides) of the assigned papers. **The subjects of these group discussions will be a part of the material covered in class examinations.**

**Order of Topics** (an expanded list with assigned readings can be found in the **Course Schedule**)

Introduction

Water, Part 1: Hydrology

Water, Part 2: Quality

Water, Part 3: Analysis

**Water Treatment Plant Field Trip**

Quality Control & Quality Assurance in Environmental Analyses

**FDEP Water Quality Lab Field Trip**

Toxic Chemicals 1: Organics

Toxic Chemicals 2: Metals

Toxicology, Risk Assessment and Risk Management

Waste Management

Atmospheric Chemistry 1: The Atmosphere

Atmospheric Chemistry 2: Global Warming

Atmospheric Chemistry 3: The Stratosphere & Ozone Depletion

**Problems:** It is expected that all assigned problems will be completed, even though they will not be graded or turned in. Working and thoroughly understanding problems are essential for properly mastering this course. For some reason, homework problems also have a way of turning up on exams unannounced!

**Course Web Page:** All important information regarding this course can be found on the course web page. This web page can be accessed directly from <https://campus.fsu.edu>. It is divided into sections that can be accessed by simply clicking on the appropriate heading in the menu bar along the left side of the screen. You will find links to the following:

### **Announcements**

- news and information

### **Staff Information**

- biographical sketches of the course instructor and laboratory instructors

### **Syllabus**

- course description
- lecture outline
- assigned problems
- discussion topics and leaders

### **Lecture Notes**

- pdf files containing the PowerPoint lecture presentations

### **Exams Topics**

- a detailed list of topics that will be covered in each exam
- equation cheat sheets for exams

### **Old Exams**

- exams from previous semesters

### **Communication**

- a vehicle to send messages, questions and comments to me or the class

### **Student Tools**

- on-line gradebook for checking grades

### **Cool Environmental Chemistry Links**

### **Chemistry Department Home Page**

**Academic Honor System:** The Academic Honor System at Florida State University is based on the premise that each student has the responsibility to:

- 1) uphold the highest standards of academic integrity in the student's own work,
- 2) refuse to tolerate violations of academic integrity in the academic community, and
- 3) foster a high sense of integrity and social responsibility on the part of the University community.

**Please NOTE that violations of the Academic Honor System will not be tolerated in this class. Specifically, incidents of plagiarism of any type, including the use of unauthorized materials during exams or submission of other students' reports, will result in a grade of F being assigned for the term.**

For more information on the FSU Honor Policy, visit the following web site:

<http://dof.fsu.edu/honorpolicy.htm>

**American Disabilities Act:** Students with disabilities needing academic accommodations should do the following:

- 1) register with and provide documentation to the Student Disability Resource Center (SDRC);
- 2) bring a letter to the instructor from SDRC indicating your need for and the nature of academic accommodations. This should be done within the first week of class.