Course Objectives

- Differentiate between environmental chemistry and laboratory chemistry
- Apply fundamental chemical principles in the context of environmental problems
- Understand the roles of carbon dioxide and the oceans in global climate change

Expectations

You are expected to: (1) attend class regularly, (2) be an active participant in class, (3) turn in assignments on time, and (4) do the required reading.

Assignments

Homework assignments will be handed out in class and will usually be due at the start of the next class. Late homework will not be accepted since we will discuss the answers in class.

Reading

1) *The Role of the Ocean in Climate: Yesterday, today, and Tomorrow* by Wallace Broecker (Gauchospace)
2) *Introduction to Environmental Chemistry* by Andrews et al. (Gauchospace)
3) *Elements of Environmental Chemistry* by Ronald Hites (Gauchospace)
4) Other readings will be posted on Gauchospace

Exams

The course exam is scheduled for Nov 18 during the regular class time

Evaluation

Your course grade will be based on:
- Class Participation and Quizzes (10%)
- Problem Sets (30%)
- Final Class Exam (25%)
- Term Paper (35%)

I might scale the grades at the end of the course. No extra credit will be offered.
Course Schedule (subject to change):

Week 0 (9/25): Introduction, Review of Chemical Equilibrium
   *An Introduction to Environmental Chemistry* by Andrews et al., Chap. 1 & 2,
   Box 3.2 & 3.4
   *Elements of Environmental Chemistry* by Hites, Chap. 1
Week 1 (9/30 & 10/2): Chemical Kinetics & Principles of System Modeling
   *An Introduction to Environmental Chemistry* by Andrews et al., Box 4.4
   *Elements of Environmental Chemistry* by Hites, Chap. 2 & 3.4
Week 2 (10/7 & 10/9) Introduction to the ocean
   *Broecker*, Chap. 1
   10/7: **Problem set #1 due in class**
Week 3 (10/14 & 10/16) The Global Carbon Cycle & Carbonate Chemistry
   *Broecker*, Chap. 4
   Hites, Chap. 4
   10/14: **Problem set #2 due in class**
   10/16: **Abstract & References due before class**
Week 4 (10/21 & 10/23) Carbonate Chemistry continued & Ocean Acidification
   *Broecker*, Chap. 6
   Hites, Chap. 4 (omit 4.2)
   10/21: **Problem set #3 due in class**
Week 5 (10/28 & 10/30) Introduction to Long-Term Climate Change
   *Broecker*, Chap. 6
   10/28: **First Draft of Paper due by 5 pm**
Week 6 (11/4 & 11/6) Long-Term Climate Change continued
   *Climate change*, Chap. 6
   11/4: **Problem set #4 due in class**
Week 7 (11/11 & 11/13) Warming and some Consequences
   *Climate change*, Chap. 7
   11/8: **Problem set #5 due in class**
Week 8 (11/18 & 11/20) Review and Final Class Exam
   11/18: **Peer Reviews are due by 5 pm**
   11/20 **Final Class Exam**
   **11/27 – No Class Thanksgiving Holiday**
Week (12/2 & 12/4) Student Presentations

12/10: Final Draft of papers are due by 12:00 pm
Policies

- All incidents of academic misconduct will be reported to the Dean of Students Office and will result in a grade of “F” in the course.
  UCSB Student Conduct and Discipline:
- “The grade Incomplete (I) may be assigned when a student's work is of passing quality but is incomplete.”
  UCSB Academic Policies and Procedures:
  http://www.catalog.ucsb.edu/2007cat/app.htm#IncompleteGrades
- It is against UCSB policy to give grade information by email. Please check GOLD for your course grade and/or come to my office to see your final exam.
- Turn off cell phones and laptops before class.