Oceanography 520: Chemical Oceanography:  
Class web site: www.ocean.washington.edu/courses/oc520

Professor:  
James W. Murray  
Office: 413 OSB (543-4730)  
e-mail: jmurray@u.washington.edu  
Office Hours: MWF from 1030-1130 (or make an appointment)

Class Periods: MWF 9:30 - 10:20  OSB425

Course Description

The course content is shown in the Syllabus and consists of 19 lectures (sometimes more than one class period per lecture). See Syllabus for important dates.

The main unifying science Theme #1 is The Global Carbon Cycle. The syllabus is organized into three broad subthemes.

Theme #2. What controls the composition of seawater and are humans changing it?
Theme #3. What are the Chemical Constraints on Biological Production in the Ocean?
Theme #4. What is the Fate of organic matter produced by biological production and what are the impacts of this organic matter on the ocean and underlying sediments?

The normal week will consist of 2 lectures (M,W) and one group learning session on Friday. The group learning sessions on Fridays will consist of a problem solving session in which students will discuss among themselves problems like the problems due on the problem set.

Learning Objectives:  
We will emphasize concepts rather than facts. The most important things you should get from this class are tools you can apply to problems and an appreciation of current hot topics that drive research in Chemical Oceanography. By the end of this class you will be able to:

1) conduct simple chemical equilibrium calculations – like at what CO₂ level will CaCO₃ reefs dissolve?  
2) construct simple mass balance box models – for example what would atmospheric CO₂ be if there was no ocean biology?  
3) critique literature in oral presentations – some papers will be older classics, others will be hot and new.
**Teaching:**
The Professor is Jim Murray. His background is in inorganic chemical oceanography. His current interests are nitrogen cycling in the Black Sea and the origin of iron and impacts on biology in the equatorial Pacific. He is starting a new initiative on the biological impacts of ocean acidification. See his website (below) for more information about his research interests:

http://www.ocean.washington.edu/people/faculty/jmurray/jmurray.html

**Reading:**

Additional supplemental reading passed out or linked on the web site

**Web Site:**
This contains the PowerPoints slides that will be used for lectures. It also includes PDF versions of the papers used for class paper discussions.

**Summary of Grading:**
- General Class participation: 5%
- Problem Sets/Paper Discussions (5 x 7%): 35%
- Midterm #1 (October 30): 15%
- Midterm #2 (December 2): 15%
- Final Exam: 30%

**Problem Sets:**
There will be five problem sets. These are to be turned in before class on the day they are due (see schedule).