

Syllabus - SIO 174 Chemistry of the Ocean and Atmosphere Spring 2019
4 units Grading: letter. Lecture times 9:30-10:50 Tues and Thurs in Vaughan 348

Instructor: Jeff Severinghaus
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Office hours: Friday 10:00-12:00, Vaughan 211
Homework will be given weekly, on Thurs

Grading: 30% homework, 20% midterm exam, 50% final exam. Letter grade only.

Lecture#	Date	Topic
1	Tues April 2	Course overview: Why study ocean and atmosphere together?
2	Thur April 4	Carbon chemistry in seawater
3	Tues April 9	Anthropogenic CO ₂ uptake by the ocean
4	Thur April 11	Acid-base ocean chemistry
5	Tues April 16	Ocean acidification
6	Thur April 18	Alkalinity and calcium carbonate precipitation/dissolution
7	Tues April 23	Long-term control of atmospheric CO ₂ and feedbacks
8	Thur April 25	Methane, N ₂ O, ozone, and other greenhouse gases
9	Tues April 30	Stratospheric ozone loss and the "ozone hole"
10	Thur May 2	Midterm exam
11	Tues May 7	Photochemical smog, NO _x , and urban air pollution
12	Thur May 9	Black carbon, particulates, and human health
13	Tues May 12	Aerosols and their climatic effects
14	Thur May 14	The cleaning agent of the atmosphere – hydroxyl radical
15	Tues May 19	Chemical tracers of atmospheric circulation
16	Thur May 21	Ocean tracers of circulation and deep water formation
17	Tues May 28	How does the sea become salty? Weathering reactions
18	Thur May 30	Deep time, origin of atmospheric oxygen, and snowball earth
19	Tues June 4	Introduction to geochemical modeling
20	Thur June 6	Engineering solutions to global warming & ocean acidification

Final exam: Friday June 15th, 8:00 am – 11:00 am