

AATM 619: Oceans and Climate Seminar

Fall Semester 2013

Tuesday, Thursday 8:45 – 10:05 AM
Location: ES 223

Instructor: Prof. Brian Rose

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Office: ES 315

Office hours: drop-in or by appointment

Grading: Satisfactory / Unsatisfactory

Prerequisites: permission of instructor. *Some background in graduate-level atmospheric and/or ocean dynamics will be very helpful.*

Students should register for 3 credits. Contact instructor for permission codes.

Course description:

We will examine the role of the oceans in the climate system on timescales of decades to millions of years. Readings will be drawn from the recent literature, giving students an overview of our current state of understanding and/or ignorance. Specific topics will be tailored to student interest and background, but will include several of the following:

- the global meridional overturning circulation
- transport and storage of heat in the oceans
- effects of ocean heat transport on the atmosphere
- ocean - sea ice interaction
- dynamics of abrupt climate change
- effects of paleo-geography and ocean gateways on past climates.

The course will be driven by class discussion of readings, including observational, modeling and theoretical approaches. We will devote significant discussion time to critical assessments of the strengths and weaknesses of each assigned work.

Course objectives:

To provide a survey of current knowledge on the role of oceans in the climate system, to introduce students to a variety of methods of inquiry into the subject, and to develop critical thinking skills.

Requirements:

Assigned readings will be distributed by the instructor. A “satisfactory” grade will require regular attendance, reading and participation in class discussions. Each student will be expected to lead the discussion on particular readings periodically throughout the semester.