More photos: zeta-xi 2022; field trip 2022

Instructor: Eli Tziperman; office hours: 24 Oxford, 4th floor, room 456; Mondays and Wednesdays 1â€“2 pm unless otherwise noted here:
TF: Elle Weeks; elleweeks@g.harvard.edu; office hours: Thursdays 4â€“5 pm, GeoMus 413.
Section/homework help: 4:30â€“6:30 pm one day before HW is due. Location: GeoMus 413**.**

Course times: Tuesday, Thursday, 10:30â€“11:45

Location: Geological Museum, 24 Oxford St, third floor, room 375

Description: Observations and fundamentals of ocean dynamics, from the role of the oceans in climate change to beach waves. Topics include the greenhouse effect and the role of the oceans in global warming; El Niâ€‹Ã±o events in the equatorial Pacific Ocean; the wind-driven ocean circulation and the Gulf Stream; coastal upwelling and fisheries; temperature, salinity, the overturning ocean circulation and its effect on global climate stability and variability; wave motions: surface ocean waves, internal waves, tsunamis, and tides; ocean observations by ships, satellites, moorings, floats and more. A field trip to the Woods Hole Oceanographic Institution on Cape Cod will be an opportunity to learn about sea-going oceanography. Students will be doing a group video project and group in-class presentations. Scientific computation and visualization methods will be introduced (students may choose either Matlab or Python) and will be used for some homework assignments.

A field trip (required and fun!) to the Woods Hole Oceanographic Institution on Cape Cod will be held during the course on **Thursday, March 28, 2024**, which will be an opportunity to learn about sea-going oceanography.

Prerequisite: Applied Mathematics 21a,b; Physical Sciences 12a, Physics 15a or Applied Physics 50a; or equivalents/ permission of instructor. Basic programming for scientific computation and graphics will be introduced (students may choose either Matlab or Python), and will be used for some homework assignments. If you would like a Matlab refresher, register to the Matlab boot camp, 3â€“4 lectures during the beginning of the term.

Requirements: Homework will be assigned every 9â€“10 days throughout the course (40% of the course grade, lowest HW grade dropped). Each student will be asked to give a short (10 min) presentation of some aspects of the ocean circulation and its role in climate that complements class material; please see details here for a list of possible subjects; In addition, a small-group video project (â€œOscarsâ€, e.g., here) and/ or a small-group wikipedia entry-writing project will be assigned (30%). The final exam will be a take-home (30%).

Course forum: Please post questions regarding HW or other issues to the course forum (Ed, see Canvas menu). You are very welcome to respond to other studentsâ€™ questions.

Electronic homework submission: Your submission, via Gradescope (see Canvas menu), may be typeset or scanned, but must be clear, easily legible, and correctly rotated. A scan using a phone app (e.g., this) may be acceptable if done carefully. Upload different files for the different questions, or upload a single pdf and mark which pages contain answers to which question; see tutorial video. Unacceptable scans could lead to a rejection of the submission or to a grade reduction of 15%.

[field trip to Woods Hole Oceanographic Institution]

Course resources:

(1) The **Sources directory**, with all class notes, demos, code, data! Available via two options:

(A) Dropbox link: https://www.dropbox.com/sh/an9zb83irth81j5/AABkXRy-8gv0igxqQG23bqA5a?dl=0

(B) Harvard site: https://courses.seas.harvard.edu/climate/eli/Courses/EPS131/Sources/

(2) The **detailed syllabus** and links to all course notes and teaching materials under http://www.seas.harvard.edu/climate/eli/Courses/EPS131/2024spring/syllabus-EPS131.pdf.

Collaboration policy: we strongly encourage you to discuss and work on homework problems with other students and with the teaching staff. However, after discussions with peers, you need to work through the problems yourself and ensure that any answers you submit for evaluation are the result of your own efforts, reflect your own understanding and are written in your own words. You must appropriately cite any books, articles, websites, lectures, etc that have helped you with your work. Course materials are the property of the instructional staff, or other copyright holders, and are provided for your personal use. You may not distribute them or post them on websites without the permission of the course instructor.