

## **SIO 171: Introduction to Physical Oceanography**

Fall 2024

Lectures: T/Th 2:00-3:20

Section: Th 3:30-4:20

Nierenberg Hall 101

Prof: Dan Rudnick, [drudnick@ucsd.edu](mailto:drudnick@ucsd.edu)

Office hours 3:00-5:00 Friday by zoom

All course material on Canvas.

Zoom password: SIO\_171

Sep 26	Lecture 1. Introduction: Time and length scales for fluids on a rotating Earth.
Oct 1	Lecture 2. Physical properties of seawater, part 1.
Oct 3	Lecture 3. Physical properties of seawater, part 2.
Oct 8	Lecture 4. Typical distributions of water properties, part 1.
Oct 10	Lecture 5. Typical distributions of water properties, part 2.
Oct 11	Homework #1 due
Oct 15	Lecture 6. Ocean instruments and data.
Oct 17	Lecture 7. Transports and budgets
Oct 22	Lecture 8. Conservation laws for physical oceanography.
Oct 24	Lecture 9. Diffusion and mixing.
Oct 25	Homework #2 due
Oct 29	Review for midterm.
Oct 31	Midterm.
Nov 5	Lecture 10. Conservation of momentum.
Nov 7	Lecture 11. Geostrophy.
Nov 12	Lecture 12. External forcing by the atmosphere.
Nov 14	Lecture 13. Potential vorticity.
Nov 15	Homework #3 due
Nov 19	Lecture 14. Eastern boundary current systems.
Nov 21	Lecture 15. Waves.
Nov 26	Lecture 16. Tides.
Nov 28	Thanksgiving.
Dec 3	Lecture 17. Pacific equatorial circulation and El Niño
Dec 5	Review for final.
Dec 6	Homework #4 due
Dec 12	Final, 3-6 pm.

Course requirements (grading)

4 Homeworks (10% each)

Midterm (20%)

Final (40%)