

A & O SCI 200A
Introduction to the Atmospheric and Oceanic Fluids
Fall 2010

Instructor: Prof. Kristen Corbosiero, MS 7149, 310-825-1751, kristen@atmos.ucla.edu

Class hours: Monday/Wednesday 10:30 – 11:50 AM, Friday 11– 11:50 AM in MS 7124A
No class Monday and Wednesday, October 4th and 6th

Office hours: Tuesday 10 AM – Noon, and by appointment

Class web site: <http://ccle.ucla.edu/course/view/10F-AOSCI200A-1>

Grading: Homework Assignments (40%), Midterm Exam (30%), Final Exam (30%)

Exams: Midterm – Monday or Wednesday, October 25th or 27th (In class)
Final – Thursday, December 9th 11:30 AM-2:30 PM (University assigned time)

Required texts:

Fermi, E., 1956: Thermodynamics. 1st edition, Dover Press, 160 pp.

Holton, J. R., 2004: An Introduction to Dynamic Meteorology. 4th edition, Academic Press, 535 pp.

Useful texts:

Rogers, R. R., and M. K. Yau, 1989: A Short Course in Cloud Physics. 3rd edition, Pergamon, 293 pp.

Martin, J. E., 2006: Mid-latitude Atmospheric Dynamics: A First Course. 1st edition, Wiley, 324 pp.

Wallace, J. M., and P. V. Hobbs, 2006: Atmospheric Science: An Introductory Survey. 2nd edition, Academic Press, 504 pp.

Topics:

- Atmospheric and Oceanic Composition and Structure
- Equation of State
- First and Second Laws of Thermodynamics
- Entropy, Saturation, and Moist Conservative Variables
- Thermodynamic Diagrams
- Buoyancy, Stability, CAPE and CIN
- Fundamental Fluid Forces
- The Momentum Equation
- Balanced Flows (Cyclostrophic, Gradient, and Geostrophic)
- The Thermal Wind
- Circulation and Vorticity
- Potential Vorticity