

A & O SCI C110/C227
Advanced Dynamic and Synoptic Meteorology
Spring 2011

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

Class hours: Tuesday and Thursday 1:00 – 3:15 PM in MS 7101

Credits/Prerequisite: 6 / A & OS 101 (for C110 only)

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

Class web site: <http://ccle.ucla.edu/course/view/11S-AOSCIC110-1>

Grading: Midterm exam (20%); Map discussion, forecasting and class participation (20%); Final exam (20%); Homework and lab assignments (40%)

Attendance: This is a fast paced, rigorous six credit class. Class attendance and participation are mandatory for lectures and in class lab assignments.

Exams (in class): Midterm – Tuesday, April 26th; Final – Thursday, June 2nd

Recommended texts:

Bluestein, H. B., 1992: Principles of Kinematics and Dynamics. Vol. I, Synoptic-Dynamic Meteorology in Midlatitudes, Oxford University Press, 431 pp.

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

Map Discussion / Forecasting: Student run map discussions will occur during the second half of the semester (more information will follow). To go along with map discussions, students are required to forecast (maximum and minimum daily temperature, probability of precipitation, sky cover and weather type) for LAX and STL on Monday, Tuesday, and Wednesday of map discussion weeks.

Topics:

- Geostrophic wind
- Surface and upper air charts; Fronts
- Thermal wind balance and jet streak circulations
- Thermodynamic energy equation and stability
- Atmospheric soundings
- Vorticity equation
- Quasi-geostrophic (QG) theory
 - ~ QG vorticity and thermodynamic equations
 - ~ QG height tendency (χ) equation
 - ~ QG omega (ω) equation
- Thermal vorticity
- Movement of surface features