

METR 6413, Sec. 1
Advanced Mesoscale Meteorology
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Fall 2008

Class meeting: Tuesdays and Thursdays at 10 – 11:15 AM in NWC 5930.

Make-up classes (when needed).

Office hours: Mondays at 4 - 5 PM and Thursdays at 1:30 – 2:30 PM

Prerequisites: METR 4123 (senior-level synoptic meteorology) or equivalent, METR 5113 (graduate –level dynamics) or the equivalent, and METR 5413 (graduate-level synoptic meteorology) or the equivalent. Ability to access, plot, and make computations of weather data at OU would also be helpful.

Required text: *Synoptic-Dynamic Meteorology in Midlatitudes, Vol. II: Observations and Theory of Weather Systems* by H. Bluestein, 1993, Oxford Univ. Press.

Supplemental material: *Synoptic-Dynamic Meteorology in Midlatitudes, Vol. I: Principles of Kinematics and Dynamics* by H. Bluestein, 1992, Oxford Univ. Press.; and journal articles, notes, and/or other similar material.

Major topics:

1. Brief review of symmetric instability; conditional symmetric instability
2. Topographic interactions
 - a. Kelvin waves
 - b. trapped density currents and the barrier jet; bores
 - c. mesoscale eddies - the Catalina eddy, the Denver convergence - vorticity zone
 - d. mountain waves and downslope windstorms
3. Gravity waves in the absence of orographic forcing
4. Precipitation and orography
5. Horizontal convective rolls
6. Sea-breeze front, mountain-valley winds, dryline circulation
7. Aspects of mesoscale convective systems (time permitting)

Grades: 1/3 Mid-term exam

1/3 Final exam (not comprehensive) on next-to-last day of this class

1/3 Term paper (due last day of class); brief oral presentation on last day of class

Reasonable accommodation policy: The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone 405/325-3852 or TDD only 405/325-4173.