Department of Atmospheric Sciences

COURSE ANNOUNCEMENT—SEMESTER I - 2007–2008

ATMS 501: Mesoscale Meteorology

Call number:	30266
Instructor:	Prof. Robert Rauber, 106 Atmos. Sci. Bldg., 333-2835
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Room and Time:	109 Atmospheric Science Bldg.; 11:00 - 11:50 M W F
Credit:	4 hours
Prerequisites:	ATMS 401 and 402

Course Content:

1. Introduction
   a) Overview and definition of Mesoscale Meteorology
   b) Forecasting and the mesoscale

2. Techniques for analysis of mesoscale phenomena

3. Internally generated mesoscale circulations
   a) Fronts and jetstreaks
   b) Instabilities
   c) Gravity waves

4. Externally generated mesoscale circulations
   a) Mesoscale circulations associated with mountains (orographic storms, mountain waves, downslope windstorms)
   b) Mesoscale circulations associated with differential surface heating (Sea breeze convection, Lake effect circulations, slope-valley flows)

5. Convective storms
   a) Isolated convective storms
   b) Squall lines
   c) Mesoscale convective systems
   d) Supercell thunderstorms
   e) Quasi-stationary convective systems
   f) Tornadoes and tornado genesis

6. Hurricanes and other mesoscale atmospheric vortices

7. Mesoscale modeling

8. Short Range forecasting of mesoscale phenomena

Text: *Mesoscale Meteorology and Forecasting*, Peter S. Ray, American Meteorological Soc., 1986 (Required)

Also: Instructor will use material from journal articles extensively in the course.