

**ATM 401/501**  
**Synoptic Laboratory II**  
**Spring 2009**

**Instructor/TA:**

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**Class Materials:**

1. Handouts.
2. Refereed literature.
3. Web-based NCEP documentation.
4. *Severe Convective Storms*, C. A. Doswell, Ed., 2001 *Meteor. Monogr.*, **27**, No. 49, American Meteorological Society, 570 pp.
5. *Extreme Weather*, C. C. Burt, 2005, Norton Press, 304 pp
6. *Northeast Snowstorms*, Vol. I and II, Paul Kocin and Louis Uccellini, 2005. American Meteorological Society, 818 and 296 pp., respectively.
7. Bosart, L. F., and H. B. Bluestein, Eds., 2008: *Synoptic-Dynamic Meteorology and Weather Analysis and Forecasting: A Tribute to Fred Sanders*. *Meteor. Monogr.*, No. 55, Amer. Meteor. Soc., 440 pp.
8. Texts: Bluestein (1992, 1993) Vol I, II; Martin (2006)
9. Best of all, the real atmosphere.

**Course Structure:**

1. Topical exams, class assignments: 40%
2. Two projects: 50%
  - a) format: standard AMS journals
  - b) length: 2000 words **maximum**
  - c) deadline: Tu: 31 March 2009 (macroclimatology)  
Th: 30 April 2009 (weather analysis and forecasting)
3. Class participation in current weather discussions and the forecast game: 10%.
4. Project Presentations: Time to be determined

**Forecasting:**

1. Forecast both ALB/EXT games.
2. Forecast on class days, and often enough on other days to make the ALB/EXT rankings (Landin rules on forecast numbers apply).

**Lecture-Laboratory Topics:**

1. Application of QG principles and PV thinking to weather analysis and forecasting on the synoptic and mesoscale.
2. Sounding analysis (fronts, PBL, jets, cloud layers).
3. Global macroclimatology and regional/local climatology.
4. Satellite analysis and interpretation.
5. Numerical weather prediction applications.
6. Use of ensembles in weather forecasting.
7. Severe weather and QPF forecasting exercises.