Grading
Same as last semester: two take-home tests (20% each), weekly lecture quizzes (30%), homework (20%), weather forecasts (10%).

Homework assignments are due one week from when they are given unless otherwise noted. Assignments turned in late may have points deducted.

Quizzes should be taken at the scheduled time. Missed quizzes must be made up within one week or points may be deducted.

The forecasts are the same as last semester. The forecast grade will be determined based on comparisons between students and with the GFS MOS forecasts. The base score for the MOS forecasts will be 80. The latest time a forecast can be submitted or amended is 5PM. You can submit the forecast either in writing or by e-mail. Missed forecasts can not be made up. You will be given the highest score of your classmates.

Normal 10 point scale will be used. Depending on the grade distribution, I may scale grades slightly and use + and - grades.

Student Map Discussions
Student map discussions will resume shortly; no grade will be given. Senior Comp map discussions will be announced later in the semester.

Your Instructor
Dr. Ed Brotak, Professor, Atmospheric Sciences Dept.
Office: RBH 234    Office Phone: 232-5160    Office Hours: TR 1:00 – 1:45
E-mail: brotak@unca.edu (the best way to get in touch with me) Home phone: 645-6298

I will again use the Campus Pipeline to e-mail you course notes, some of the homeworks, forecast scores, etc.
Lecture Outline and Readings

Text: Synoptic-Dynamic Meteorology in Midlatitudes Vol. II by Bluestein

Lecture notes will also be provided.

Topics

Surface Pressure Systems (3-54, 112-207)

- Formation of Surface Pressure Systems
- Movement of Surface Pressure Systems
- Climatology of Cyclones & Anticyclones over North America

Cyclogenesis

- Historical Perspectives of Cyclogenetic Theories
- The Norwegian Cyclone Model
- Petterssen's Development Equation
- Case Studies of Developing Systems
- Cyclogenesis & Upper-Level Troughs
- Other Mathematical Concerns
  - The Balance Equation
  - Isentropic Potential Vorticity
- Special Types of Cyclogenesis
- Regional Cyclogenesis

Clouds & Precipitation Production and Patterns in Extratropical Systems

Fronts

- Air Masses

Surface Fronts

- Definition
- Frontogenesis
- Types of Surface Fronts
  - Cold Front
  - Warm Front
  - Stationary Front
  - Occluded Front
  - Coastal Front

Upper-Level Fronts

- Definition
- Frontogenesis
- Tropopause Features
- Vertical Motions
Convection in Midlatitudes

Soundings and Convection
Convection Defined by Synoptic Situation
   Non-Organized Convection
   Organized Convection
Mesoscale Convective Systems
   Squall Lines
   Bow Echoes
   Derechoes
   Mesoscale Convective Complexes
Types of Thunderstorms
   Supercells
   Development and Structure
Straight Line Winds with Thunderstorms
Tornadoes
   Relationship to Mesocyclone
   Development
   Characteristics
   Other Types