ATM 400: Synoptic Meteorology I
Fall 2015

Instructor: Prof. Kristen Corbosiero, ES 321, 442-5852, kcorbosiero@albany.edu

Class hours: Tuesday and Thursday 4:15–5:35 PM in ES 232 and ES 333

Office hours: Monday 2–3 PM; Tuesday & Thursday 11 AM–Noon, and by appointment

T.A.: Pamela Eck, ES 218, peck@albany.edu, Monday & Wednesday 12:30–1:30 PM

Class web site: http://www.atmos.albany.edu/daes/atmclasses/atm400

Prerequisites: ATM 311, 316, and 350

Course objectives: The primary goal of this course is to bridge the gap between theory and observation in the study of midlatitude weather phenomena. We will achieve this goal through the application of fundamental principles of dynamic meteorology, including quasigeostrophic theory and potential vorticity, to analyze real time examples and classic case studies. In addition, key components of the course will be map discussions, participation in the Albany weather and 3-5 day extended forecast contests, and the completion of an original research project.

Topics (tentative!):
• Review of governing equations and balances
• Ageostrophic flow
• Jet streak circulations
• Quasi-geostrophic (QG) theory
  ~ QG vorticity and thermodynamic equations
  ~ QG height tendency (χ) equation
  ~ QG omega (ω) equation
  ~ Sutcliffe-Trenberth ω equation
• Thermal vorticity
• Q-vectors
• Potential vorticity (PV) thinking
  ~ Isentropic analysis
  ~ Dynamic tropopause
  ~ PV non-conservation

Recommended texts:
**Grading:** Midterm exam (15%); Final exam (20%); Quizzes (10%); Research project (20%); Map discussions (15%); Homework and lab assignments (15%); Forecasting and class participation (5%)

**Exams (in class):** Midterm – Tuesday, October 27th; Final – Tuesday, December 8th

**Attendance:** This is a fast paced, rigorous class; unexcused absences are not acceptable and class attendance/participation is expected. Make-up exams and quizzes will not be given except for an illness documented by a physician, official college-sponsored activities with appropriate documentation, or a death in the immediate family with a note from the Dean’s office. Homework assignments that are turned in late will be subject to a 10% deduction in grade per day late.

**Academic integrity:** Cheating and plagiarism is unacceptable and will result in a zero for this class and can potentially result in suspension from the University. It is every student’s responsibility to become familiar with the university’s standards of academic integrity. The following university website provides additional information:
http://www.albany.edu/undergraduate_bulletin/regulations.html