

GGY 433 Weather Analysis and Forecasting

Fall 2009
Lecture 9:00-9:50 MWF
E-mail: gambled@uncw.edu

Dr. Douglas W. Gamble
Office: DeLoach 126, Phone 962-3778
Office hours: 10-11 MWF, 11-12, 4-5 TR;
or by appointment.

COURSE DESCRIPTION. Introduction to tools for weather analysis and use of these tools to construct weather forecasts.

COURSE GOALS.

1. Instill in students an understanding of the atmospheric processes that may cause day-to-day weather variability.
2. Teach students how to use basic tools of weather analysis, including weather maps, radar, and satellite images.
3. Teach students how to create a short-term weather forecast.

COURSE MATERIALS. Various readings to be assigned throughout the semester.

<u>Week</u>	<u>Topic</u>
Aug 19-21	Surface Station Models
Aug 24-28	Satellites
Sep 31-4	Radar and Conceptual Models of the Atmosphere
Sep 7-11	LABOR DAY , Air Temperature Forecasts
Sep 14-18	Atmospheric Moisture Analysis
Sep 21-25	Atmospheric Pressure
Sep 28-2	Atmospheric Kinematics, WFO Visit
Oct 5-9	FALL BREAK , Thermodynamics
Oct 12-16	skew-T
Oct 19-23	Frontogenesis
Oct 26-30	Jet Stream, Extratropical Cyclone
Nov 2-6	Cyclogenesis, Thunderstorms and Severe Weather
Nov 9-13	Thunderstorms & Severe Weather EASTER BREAK
Nov 16-20	Tropical Weather
Nov 23-27	THANKSGIVING BREAK
Dec 30-2	Computer Models, Teleconnections

Class Format and Assessment

GGY 433 meets three days a week Monday, Wednesday, and Friday. Typically, the MW class periods will consist of lecture and review of concepts. There is no textbook assigned to this class. In place of the textbook, students will be responsible for reviewing notes, completing web-tutorials, and occasional reading assignments.

In-class Exercises: Friday class periods will include an in-class exercise that is to be completed and handed-in by the beginning of the next Monday class.

Weather Journal and Briefing: Each student will be required to keep a Wilmington weather journal for the Fall semester. Each journal should contain a description of current weather conditions and analysis of weather causing processes for each day of class. At the beginning of each class period, one student will be required to brief the class on the day's weather based upon their journal.

Forecasting Contest: Beginning the first week of September, each student will participate in a weather forecasting contest. The forecast competition entails a Friday weather forecast for Wilmington. The forecast must reach Dr. Gamble by e-mail before midnight on Thursday. The forecast needs to include a maximum and minimum temperature and a categorized amount of precipitation (see categories below).

Precipitation Categories

- 0 – no precipitation or trace
- 1 – trace – 0.05”
- 2 – 0.06 - 0.24”
- 3 – 0.25 – 0.49”
- 4 – 0.50 – 0.99”
- 5 -- >= 1.00”

Scoring for each forecast is determined through temperature errors as one point per degree Fahrenheit, and precipitation categories errors are 4 points per category. In the event that a trace of precipitation occurs, both category 0 and 1 will be accepted as correct forecasts. Final grades for the forecast competition will be determined at the end of the semester by ranking each student’s scores and assigning grades accordingly. All students that hands in all forecasts on time are guaranteed 10.5 out of the 15% assigned to the forecast competition.

Exams: There will be two exams during the semester. The exams will consist of multiple choice questions, short essay questions, and analysis and forecasting problems taken from in-class exercises.

Final Grade Weight/Proportions: Exam 1 25%, Final Exam 25%, Exercises 20%, Weather Journal and Briefing 15%, Forecasting Contest 15%.

Exam Dates: Exam 1: October 2, 2009 Final Exam: Dec 4, 2009 8AM

Grading Scale: A >94, A- 93-90, B+89-87, B 86-84, B- 83-80, C+79-77, C 76-74, C- 73-70, D+ 69-67, D 66-64, D- 63-60, F >60.

HOW TO DO WELL IN CLASS

- 1) **Attend class.** The instructor will not take daily attendance. It is your decision as to whether or not to attend class. However, I have found in my ten plus years of teaching that poor attendance = poor grades. In addition, if you ask me for help, I have less sympathy and I am less likely to extend assistance if chronic absence is obvious.
- 2) **Listen before you take notes.** All too often students spend an entire lecture mindlessly copying everything the professor states. The objective of taking notes is to jot down important information that will help you study at a latter date, not create an additional textbook. Listen to what the professor has to say, decide what is important then write abbreviated notes and use the textbook or other materials to fill in details at a later date. If lecture is moving at to quick of a pace, raise your hand and ask the lecturer to slow down.
- 3) **Determine what the professor wants you to learn.** More often than not, the professor does not expect you to know everything on the subject or in a textbook. Talk to the professor to decide what your study strategy should be and focus on important topics to increase your studying efficiency.
- 4) **Decide on the level of knowledge expected by the professor.** The type of knowledge that professors want you to acquire in their classes is not all the same. In general, the higher the level of the class, the higher or more involved the level of knowledge the professor requires.

- 5) **Study through active learning.** Different types of learning exist and students must decide their own most appropriate learning style. One type of learning that has received much positive praise recently is active learning. Active learning is when the student becomes actively involved in the course. Examples of active learning are field activities, laboratory activities, videos, discussions, and group work. However, given the rise in enrollment in universities and growth of classroom size, it can be difficult for the professor to manage such activities. The result is a lecture-based course where the only activity for students is to listen and take notes. If you are having difficulty with class material, seek active learning opportunities. Ask professors for exercises, form a study group, or complete study questions in the textbook. I design lectures to end so that you have several minutes at the end of class for you to ask me questions one on one. Take advantage of this time.

IMPORTANT REMINDERS

- 1) **All students are responsible for announcements in class regarding changes or modifications of class schedule or grading policies posted on SeaPort.**
- 2) **Academic dishonesty will not be tolerated and when discovered dealt with in accordance to University Policy as outlined in the Student Handbook.**
- 3) **Unexcused absences for exams will result in a grade of zero.**
- 4) **Chronic absences will have a negative effect upon your grade.**
- 5) **Disruptive behavior, in particular talking during the lecture or when other students ask questions, will not be tolerated. If disruptive behavior occurs the instructor will ask the students involved to stop. After such a request, continued and excessive disruptive behavior will be reported to the Office of the Dean of Students.**