EAS 4450

Spring 2013

Dr. St. John
1110 ES&T
stjohn@eas.gatech.edu
404-894-1754

This course will primarily be taught as a seminar. The students will take turns making presentations throughout much of the semester. The form of the presentation will be a discussion of current and past weather conditions and a forecast of future conditions. The presenter can expect to be asked detailed questions about his/her knowledge of the background material and meteorological reasoning.

The Text for the course is Severe & Hazardous Weather by Rauber, Walsh and Charlevoix, and the accompanying Active Learning Exercises book.

These discussions will begin about the 6th week of the semester. During the first five weeks I will be lecturing on basic meteorological dynamics and synoptic meteorology. Lecture Topics/Schedule:

1. Introduction and Development of meteorological theories.
2. Acquisition of meteorological data – pitfalls and accuracy
3. Air masses and development of the Norwegian Wave Cyclone Model and frontal theory.
4. Acquisition of Upper Air data. Rossby and wave theory
5. Atmospheric Stability
6. Quasi-Geostrophic Theory, assumptions and limitations
7. Advection and vorticity
8. Thermodynamics and Thickness
9. Numerical Weather prediction strengths and weaknesses.
10. Remote Sensing Data (Radar – Satellite)
11. Putting it all together to make a forecast.

You will also be required to complete assignments from the Active Learning Exercises book and online modules as assigned. Homework Assignments are located in the resources section on T-Square.

At the end of the lecture sequence I will present a 1 hour Synoptic Discussion in power point, to demonstrate the format of these discussions. I will provide a copy of this file to

the students to use during their discussions. Students must follow the format I use in the demonstration, but are encouraged to bring in additional data, analyses and resources as appropriate. These presentations are to be treated as seminars as all students in the class are expected to participate with comments and questions during each class period. As the instructor, I will frequently as questions of the presenter. If he or she does not have an immediate answer, the rest of the class will be expected to join in the discussion. I will also advantage of "teachable opportunities" to jump in and give mini-lectures on topics that are presented by the daily synoptic situation.

Grading: There will be a mid term exam which will account for 30% of your grade. Class participation and projects will account for 40% of your grade (this includes your discussion presentations.) At the end of the semester you will complete a case study (Take home final exam) which will account for 30% of your grade.

During the semester, you will be expected to be up to date on meteorological conditions across North America. There are numerous on-line resources as well as the Weather Channel and other new stations, you can use for these purposes. You may use
www.weathertap.com (login required - see next page) ,
http://stjohn.eas.gatech.edu/atlanta_area_weather_information.htm
http://weather.unisys.com/index.html
http://www.weather.gov/
http://www.crh.noaa.gov/lmk/php/graphs.php?obvar=kchs&zoneid=EDT this one allows you to put up a 3 day plot of past weather at any site in the country.
http://www.wright-weather.com/ Login ID **gatech** Password: **Buzz2011!**

WeatherTap Account Login:
Login names are: (case sensitive)
GTmetstudent1
GTmetstudent2
GTmetstudent3
GTmetstudent4
GTmetstudent5
GTmetstudent6
GTmetstudent7
GTmetstudent8
GTmetstudent9
GTmetstudent10
The password is buzz2005