ATMO 251: WEATHER OBSERVATION
AND ANALYSIS

Fall 2006

Instructor
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Office hours: Wednesday Noon to 2:00 PM; or by drop-in or appointment anytime.

Teaching Assistant

Prerequisites
No prerequisites are listed in the course catalog, but a history of (or enrollment in)
MATH 151 will be very helpful.

Course Website
http://www.met.tamu.edu/class/ATMO251

Text
The course textbook is being written this semester by the instructor. Chapters will be
posted online as they are completed. This means that you do not have to pay for a
textbook, but you will have to download (and print, if desired) your own chapters.
Emails will be sent to the class (be sure your Neo account is active!) each time a new
chapter is posted. Lectures will illustrate and apply the concepts in the textbook.

Schedule
Lecture: MW 10:20-11:10, O&M Bldg, Room 1210
Laboratory, section 501: Friday, 10:20-12:20, O&M Bldg, Room 1210
Laboratory, section 502: Thursday 8:50-10:50, O&M Bldg, Room 1210

Section Hopping
Both sections will cover the same material and assignments. Students may switch
between section 501 or 502 on a temporary, case-by-case basis with prior approval of the
instructor or teaching assistant. No change in registration is necessary to attend a
different laboratory section unless you wish to switch for the entire semester.

Absences
No doctor’s note is required for absences of less than three days.
Technical and Ethical Matters

ADA Statement
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall. The phone number is 845-1637.

Copyright and Plagiarism Policy
All materials used in this class are copyrighted. These materials include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted.

As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, http://student-rules.tamu.edu/, under the section “Scholastic Dishonesty”.

Aggie Code of Honor
The Honor Code, based on the long-standing affirmation that an Aggie does not lie, cheat, or steal, or tolerate those who do, is fundamental to the value of the A&M experience. Know the Code. Aggie Code of Honor: “An Aggie does not lie, cheat, or steal, or tolerate those who do.”. See http://www.tamu.edu/aggiehonor/.

Collaborative Work
Many of the laboratory assignments will be team assignments, in which assigning individual persons to do portions of the work for the whole team is expected and encouraged. Other laboratory assignments and all take-home assignments are expected to be turned in individually, but study groups and collaborative work are encouraged as long as every member of the group has participated in the problem-solving process on every problem. Any violation of the rules of cheating or plagiarism will be dealt with following the procedures of the Aggie Honor System.
Grading Policy

Laboratory assignments: straight letter grades with meanings as defined in course catalog: A=excellent, B=good, C=satisfactory, D=passing, F=failing. Laboratory assignments are due at the end of laboratory sessions unless otherwise stated. Receiving a good laboratory grade will become more difficult during the semester as expected skill levels increase.

Homework assignments: Approximately ten homeworks will be assigned throughout the semester, each due on a Wednesday and handed out at least five days before it is due. Homework grading system is as follows: 3=good, 2=satisfactory, 1=unsatisfactory, 0=nonexistent. Homeworks may be redone to improve grade. Expect each homework assignment to require approximately three to four hours of work.

Examinations: numerical grades converted into letter equivalents based on expected level of performance. All exams are closed book, closed notes.

Dec. 12, Tuesday, 8:00 AM Comprehensive final examination, 50% will be material covered since October 31)

Forecasting: students may sign up for and participate in the Weather Challenge (http://www.wxchallenge.com) Forecasting Contest for course credit. A maximum of ten points is possible for good forecasting. For each forecast city, two points will be awarded to those forecasters who finish in the top third of all forecasters nationally, one point to those who finish in the second third, and no points to those who finish in the bottom third.

Class participation: One point for each instance of positive participation (as opposed to “I don’t know” or an incorrect answer), up to a maximum of ten points for the semester. To ensure receipt of points, state your name at the beginning of your question or answer.

Maximum total points for forecasting and class participation: 10. Thus, you need not do both to get full credit. Note, however, that if you do neither, your maximum point total for the semester is only 90.

The Overall Grade is computed as follows: The average grade for laboratory assignments, quizzes, and exams is converted to a numerical value using A=100, B=87, C=74, D=61, and F=48. The average grades are then weighted as follows: 35% for laboratory assignments, 20% for each exam, and 25% for the final exam. A straight-A student would receive 80 points. The remaining 20% of the grade comes from homework, forecasting, and class participation. Homework assignment points are added as follows, 10 points for an average grade of 2.0 or better, decreasing linearly to 0 points for an average grade of 1.0. Forecasting and class participation points are as stated above. The total points are then converted to a final grade using 90-100=A, 80-90=B, 70-80=C, 60-70=D, <60=F. Some rounding up is possible at the discretion of the instructor to guarantee that students with nearly identical scores receive the same grade.
Lecture and Lab Schedule

Week 1

8-28    Monday    Ch. 1: Ways of Seeing the Atmosphere
8-30    Wednesday  Ch. 2: Point Observations
LABORATORY  METAR observations; weather maps; streamlines

Week 2

9-4     Monday    Ch. 3: Space, Time, and Motion
9-6     Wednesday  Ch. 3 continued
LABORATORY  Ch. 4: Map analysis

Week 3

9-11    Monday    Ch. 5: Soundings
9-13    Wednesday  Ch. 5 continued
LABORATORY  Sounding manipulation, advection

Week 4

9-18    Monday    Ch. 6: Remote Sensing
9-20    Wednesday  Ch. 6 continued
LABORATORY  Vertical sections, analysis with satellite

Week 5

9-25    Monday    EXAM 1
9-27    Wednesday  Ch. 7: Vector Calculus
LABORATORY  Upper air analysis, Weekly Weather Map

Week 6

10-2    Monday    Ch. 7 continued
10-4    Wednesday  Ch. 8: Coordinate Systems
LABORATORY  Gradients and advection, WWM

Week 7

10-9    Monday    Ch. 9: Advection and Convergence
10-11   Wednesday  Ch. 9 continued
LABORATORY  Convergence by eye and parallelogram, WWM
### Week 8

10-16 Monday  
Ch. 10: Geostrophic Balance  

10-18 Wednesday  
Ch. 10 continued  

LABORATORY  
Quantitative geostrophic balance, advection, WWM  

### Week 9

10-23 Monday  
Reading day  

10-25 Wednesday  
**EXAM 2**  

LABORATORY  
Gorgeous analysis, WWM  

### Week 10

10-30 Monday  
Ch. 11: Imbalance and Vertical Motion  

11-1 Wednesday  
Ch. 11 continued  

LABORATORY  
Ship observations, WWM  

### Week 11

11-6 Monday  
Ch. 12: Atmospheric Structure and Thermal Wind  

11-8 Wednesday  
Ch. 12 continued  

LABORATORY  
Vertical sections and thermal wind balance, WWM  

### Week 12

11-13 Monday  
Ch. 13: Fronts  

11-15 Wednesday  
Ch. 13 continued  

LABORATORY  
Frontal analysis, WWM  

### Week 13

11-20 Monday  
Ch. 14: Vorticity and Potential Vorticity  

11-22 Wednesday  
Ch. 14 continued  

LABORATORY  
No lab this week, it’s Thanksgiving!  

### Week 14

11-27 Monday  
Ch. 15: Potential Vorticity Dynamics  

11-29 Wednesday  
Ch. 15 continued  

LABORATORY  
PV thinking, WWM  

### Week 15

LABORATORY  
(Fri=Mon, Thu=Tue) Vertical motion, WWM