

SYLLABUS

ATMO 640

DYNAMIC METEOROLOGY

Fall 2007

Line #: 12361

8:00 - 9:15 AM TR

228 LIN

Instructor - Curtis Hall

Office: 413A LIN Phone: 864-3040 (office), 841-2181 (home)

email: cdhall@ku.edu

Office Hours: 12:30-1:15 PM TR or by appointment.

COURSE TOPICS AND SCHEDULE

<u>DATE</u>	<u>TOPIC/ACTIVITY</u>	<u>READING ASSIGNMENT</u>
Aug 16	Introduction, overview of dynamic meteorology, math review.	Chapter 1
21	Constants, dimensions, variables, units, scale analysis, forces.	Chapter 1
23	Forces, the static atmosphere, vectors.	Chapter 1
28	The static atmosphere, vectors, coordinate changing.	Chapter 1
30	Differentials, Differentiation, Vectors (unit, position), vector operations.	Chapter 2
Sep 4	Test.	Chapter 1
6	Vector operations, vector theorems, the momentum equation	Chapter 2
11	The momentum equation.	Chapter 2
13	The momentum equation.	Chapter 2
18	The continuity equation.	Chapter 2
20	The continuity and thermodynamic energy equations.	Chapter 2
25	The thermodynamic energy equation, thermodynamics of dry air.	Chapter 2
27	The basic equations in pressure coordinates.	Chapter 2
Oct 2	Balanced flow.	Chapter 3
4	Test.	Chapter 2
9	Balanced flow.	Chapter 3
11	Fall Break	None.
16	Trajectories, streamlines, the thermal wind.	Chapter 3
18	The thermal wind and vertical motion.	Chapter 3.
23	The thermal wind and vertical motion.	Chapter 3
25	Circulation and vorticity.	Chapter 4
30	Test.	Chapter 3
Nov 1	Circulation and vorticity.	Chapter 4
6	Potential vorticity.	Chapter 4
8	The vorticity equation.	Chapter 4
13	The vorticity equation.	Chapter 4
15	The barotropic vorticity equation.	Chapter 4
20	The barotropic vorticity equation.	Chapter 4
22	Thanksgiving.	None.
27	The baroclinic vorticity equation.	Chapter 4
29	The baroclinic vorticity equation.	Chapter 4
Dec 4	Test.	Chapter 4
6	Review.	Chapters 1 - 4
7	Stop day.	none
12	Final exam. 7:30 - 10:00 AM	Chapters 1 - 4

HOMEWORK: You will be required to work and submit for grading a few problems from most chapters.

EXERCISES/TESTS: There will be four in-class exercises/tests and a comprehensive final.

GRADES: The standard percentages will be used to assign letter grades. Scores may be adjusted according to class performance by an amount not greater than the equivalent of one letter grade. For grading purposes, each in-class test, the combined homework and the final will weigh 10%, 30% and 30%, respectively.

TEXTS: 1. Required. Holton, James R. (2004). An Introduction to Dynamic Meteorology (4th edition). Academic Press.

2. Recommended:

- a. Haltiner, G.J. and F.L. Martin: Dynamical and Physical Meteorology
- b. Wallace, J.M. and Hobbs, P. Atmospheric Sciences - An Introductory Survey
- c. Hess, S.L.: Introduction to Theoretical Meteorology

HANDICAPPED STUDENTS: The staff of Services for Students With Disabilities (SSD), 135 Strong, 785-864-2620 (v/tty), coordinates accommodations and services for KU courses. If you have a disability for which you may request accommodation in KU classes and have not contacted them, please do so as soon as possible. Please also see me privately in regard to this course.

INTELLECTUAL PROPERTY: Course materials prepared by the instructor, together with the content of all lectures and review sessions presented by the instructor are the property of the instructor. Video and audio recording of lectures and review sessions without the consent of the instructor is prohibited. On request, the instructor will usually grant permission for students to audio tape lectures, on the condition that these audio tapes are only used as a study aid by the individual making the recording. Unless explicit permission is obtained from the instructor, recordings of lectures and review sessions may not be modified and must not be transferred or transmitted to any other person, whether or not that individual is enrolled in the course.

CHEATING: Cheating in any manner will not be tolerated. Any student discovered cheating will be given an F for the course and a letter explaining that the grade was given for academic misconduct will be sent to the student's school or college.