

**METEO 421, FALL 2004
DYNAMIC METEOROLOGY I**

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513 WALKER
Office Hours: M,W,F 4:00-5:00 PM

COURSE OUTLINE

I. REVIEW OF BASICS

II. INTRODUCTION

- a. fundamental forces
- b. pseudo forces
- c. total differentiation
- d. continuity equation
- e. hydrostatic balance

III. KINEMATICS

- a. velocity fields
- b. streamlines

IV. BALANCED FLOWS

- a. Le Chatelier's principle
- b. geostrophic flow
- c. gradient flow
- d. streamlines and trajectories

V. UNBALANCED FLOWS

- a. inertial oscillations
- b. ageostrophic flow
- c. zonally-symmetric circulations
- d. buoyancy oscillations

VI. CIRCULATION/VORTICITY&POTENTIAL VORTICITY

- a. kinematics of circulation & vorticity
- b. circulation theorems
- c. vorticity theorem

VII. POTENTIAL VORTICITY

- a. Ertl's potential vorticity
- b. quasi-geostrophic potential vorticity
- c. applications

TEXT

Holton, J. R.: An Introduction to Dynamic Meteorology. Third Edition. Academic

Press

GRADES

Two quizzes and a final will be given. The dates are:

quiz # 1 October 7

quiz # 2 November 11

final TBA after October 4

Makeup examinations will be given under exceptional circumstances only. You must have a verifiable excuse.

The final grade will be assigned according to the following rules:

Quiz # 1	20%
Quiz # 2	20%
Final	40%
Homework	20%

<u>GRADE</u>	<u>%</u>
A	85-100
B	72-85
C	60-72
D	50-60
F	<50

Some students will be close to transitions between grades. They will have the chance to move up a grade **provided** he or she has participated in classroom discussions, has attempted to answer questions posed in class and has handed in all the homework assignments.

ACADEMIC HONESTY

Dishonesty includes cheating on an exam and misrepresenting the work of others as your own. It may result in failure of the course. For complete information about the University's policy on Academic Honesty, consult the Policies and Rules section of the Student Guide to the University, 2000/2001.