ATM 316 Dynamic Meteorology I

Fall 2015
Class Number: 7660
Credits: 3

Mon. & Wed. 2:45 – 4:05 pm in ES B13 (Holidays: 9/7, 9/14, 9/23, 11/25)
http://www.atmos.albany.edu/facstaff/tang/classes/atm316/

Professor:
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Teaching Assistant:
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Prerequisites:
ATM 211, PHY 150/151, MAT 214, MAT 311 (corequisite)

Text:
Mid-Latitude Atmospheric Dynamics: A First Course by Jonathan Martin (Ch. 1-4)

Course Requirements:
Homework Assignments (6-7): 30%
In-class Worksheets: 10%
Midterms (tentatively, Sept. 30 and Nov. 2): 30%
Final Exam (Dec. 11 3:30-5:30 pm): 30%

Late homework and off-time exams are only allowed for University-recognized reasons.

Grading:
A-E

Course Outline:
1. Vector Calculus Review: Gradient, Divergence, Curl, Integrals
2. The Total Derivative
3. Fundamental Forces in the Atmosphere
4. Rotating Frame and Apparent Forces
5. Hydrostatic Balance
6. Momentum Equations
7. Continuity Equation
8. Scale Analysis of Equations for Synoptic Flows
9. Pressure Coordinates
10. Thermal Wind
11. Natural Coordinates
12. Rossby Number and Balanced Flows