

Version: Monday, January 15, 2018

AT602
Atmospheric Dynamics II
2 credits

Instructor:

David W. J. Thompson
davet@atmos.colostate.edu
room: ATS 430

TA:

Luke Davis
lukelbd@gmail.com

Meeting times:

Tuesday, Thursday 10:00-10:50 AM, ATS 101

Office hours:

Luke TBD
Dave 11-12pm TTh

Textbooks

(required):

- Holton, J. R. and Hakim, G. J., 2011: An Introduction to Dynamic Meteorology, 5th Edition, Academic Press

(recommended)

- Vallis, G. K., 2017: Atmospheric and Oceanic Fluid Dynamics, Cambridge University Press. 2nd edition. <http://empslocal.ex.ac.uk/people/staff/gv219/aofd/>
- Hoskins, B. J. and James, I. N., 2014: Fluid Dynamics of the Mid-Latitude Atmosphere. Wiley. <https://www.wiley.com/en-us/Fluid+Dynamics+of+the+Mid+Latitude+Atmosphere-p-9780470795194>

Evaluation:

Homework (~3-4 HW assignments total): 50%
Midterm: 25%
Final: 25%

General course outline:

Weeks ~1-5. Quasi-geostrophic theory; potential vorticity and its applications (Holton/Hakim Chapter 2, 6; Vallis 2nd edition Chapters 4, 5)

Weeks ~6-11. Baroclinic instability (Holton/Hakim Chapter 7; Vallis 2nd edition Chapter 9)

Weeks ~12-15. Wave-mean flow interaction in the Eulerian and TEM frameworks (Holton/Hakim 10; Vallis 2nd edition Chapter 10).