

ATM 622: General Circulation of the Atmosphere

Fall 2019

Class Number: 9137

Credits: 3

Mon. & Wed. 4:15 – 5:35 pm in ES 108

No Class: 9/2, 9/30, 10/2, 10/14, 11/27, 12/9

<http://www.atmos.albany.edu/facstaff/tang/classes/atm622/>

Professor:

Brian Tang

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Office hours: Tues. & Thurs. 10–11 am & by appointment

Prerequisites:

ATM 511

Supplemental Texts:

Introduction to Circulating Atmospheres by James

Physics of Climate by Peixoto and Oort

Atmospheric and Oceanic Fluid Dynamics by Vallis

An Introduction to the Global Circulation of the Atmosphere by Randall

Course Requirements:

Assignments & Labs: 40%

Midterm Exam: 20%

Term Project and Presentation: 40%

Late assignments/labs, makeup exams, late term projects/presentations will only be allowed for university recognized reasons. Students are expected to uphold academic integrity standards.

Information can be found in the graduate bulletin at <http://www.albany.edu/graduatebulletin/>.

Grading:

A-E

Course Outline:

1. Earth's radiation budget: The big picture of why a circulation exists
2. Observations of the Earth's circulation
3. Mean and eddy decomposition of variables
4. Angular momentum budget
5. Total energy budget
6. Lorenz energetics and conversions between types of energy
7. Eulerian and Lagrangian views of the mean meridional circulation
8. Planetary waves and stationary eddies