



Cloud Physics

ATOC521

Instructor Info



Ivy Tan



Office Hrs: Wed 1-2pm



Burnside 817



ivy.tan@mcgill.ca

Course Info



Prereq: ATOC 315, MATH 314, and MATH 315



Tues & Thurs



11:35a-12.55p



Online via Zoom

TA Info



TBA

Overview

- Thermodynamics of dry and moist air
- Parcel buoyancy and atmospheric stability
- Mixing of air parcels
- Elemental parcel theory of convection and modifications
- Observed microphysical and macrophysical properties of clouds
- Homogeneous and heterogeneous formation of cloud droplets
- Kelvin's Equation and Raoult's Law, Kohler Theory
- Fundamentals of aerosol-cloud interactions
- Droplet growth by condensation
- Initiation of rain in warm clouds
- Formation and growth of ice crystals

Textbooks

Required Textbook

A Short Course in Cloud Physics, Third Edition (1989) by R. R. Rogers & M. K. Yau

Recommended Textbook

Microphysics of Clouds and Precipitation (2010), Second Edition by H. R. Pruppacher & J. D. Klett

Grading Scheme

25% Problem Sets

25% Midterm Exam

50% Final Exam

Academic Integrity

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures. More information can be found at <https://www.mcgill.ca/integrity>.

Note: This is a preliminary syllabus last updated in November 2020 and is subject to change.