

METR 3223: Physical Meteorology II:
Cloud Physics, Atmospheric Electricity and Optics

CLASS: Mon.-Wed.-Fri., 11:00-11:50,
National Weather Center, Rm. 1350

INSTRUCTOR:

Guifu Zhang, Associate Professor, School of Meteorology
NWC Rm. 4620
Mon. 2:00-4:00, Fri. 2:00-4:00, or by appointment
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TEXT BOOK:

Rogers and Yau: *A Short Course in Cloud Physics*, Third Edition

REFERENCE BOOKS:

Wallace and Hobbs, *Atmospheric Science*, Second Edition
Fleagle and Businger, *An Introduction to Atmospheric Physics*, Second Edition

COURSE DESCRIPTION

This course provide fundamentals and principles for understanding of the physical states and processes of clouds and precipitation as well as atmospheric electricity and optics. Specific topics that will be covered are as follows:

Cloud physics:

Review of thermodynamics
Aerosols and nucleation
Condensation growth
Collision and coalescence
Precipitation processes
Observation studies

Atmospheric electricity:

Electrostatics
Electromagnetic wave
Thunderstorm charging
Lightening

Atmospheric optics:

Reflection and refraction
Optical phenomena

GRADES

Homework problems: 40%
Midterm examination: 30%
Final examination: 30%