

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

CLASS: Monday, Wednesday and Friday, 9:00-9:50
National Weather Center, Rm. 5600

INSTRUCTOR:

Guifu Zhang, Professor, School of Meteorology
NWC Rm. 4620
Wednesday 10:00-12:00 and Friday 1:00-3:00, or drop by
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(405) 325-3507

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 provides 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
In-situ measurements and results
Radar observation and estimation

Atmospheric electricity:

Electrostatics
Electromagnetic wave
Thunderstorm charging
Lightening

Atmospheric optics:

Reflection and refraction
Optical phenomena

GRADES

Homework problems: 20%
Quiz questions: 10%
Midterm examination: 30%
Final examination: 40%