

Department of Atmospheric Sciences

COURSE ANNOUNCEMENT – SEMESTER I – 2007-2008

ATMS 504: Physical Meteorology

Call number: 49536

Instructor: Professor Greg McFarquhar, 211 Atmos. Sci. Bldg., 265-5458

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Room and Time: 109 Atmospheric Science Bldg., 10:00 - 10:50 M W F

Credit: 4 hours

Prerequisites: MATH 242, MATH 285, PHYS 113 or equivalents

This course will examine the physical processes that occur in the atmosphere. It is designed for students who are beginning a program in atmospheric science and for students from other departments who desire a background in physical meteorology.

Course Content:

1. Atmospheric Thermodynamics

Thermodynamic variables and systems; ideal gas law; laws of thermodynamics; adiabatic processes; thermodynamic diagrams; moist air thermodynamics; atmospheric process charts; stability analysis; Clausius-Clapeyron equation.

2. Cloud and Aerosol Physics

Aerosols; size distributions; homogeneous and heterogeneous nucleation of cloud drops; warm rain process; ice nucleation; cold rain process.

3. Atmospheric Radiation

Electromagnetic spectrum, radiometric quantities; measurement of radiation and clouds; blackbodies; radiative equilibrium; absorption, emission and scattering; radiative transfer.

Text: *Atmospheric Science: An Introductory Survey*, by J. M. Wallace and P. V. Hobbs, 2nd edition, Academic Press (recommended).