

Department of Atmospheric Sciences

COURSE ANNOUNCEMENT – SEMESTER I – 2007–2008

ATMS 405: Boundary Layer Processes

Call number: 49413

Instructor: Tracy Twine, 210 Atmospheric Science Bldg., 333-7105

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Room and Time: 109 Atmospheric Sciences Bldg.; 9:00-10:15 T R

Credit: 4 hours

Prerequisites: ATMS 301 and ATMS 304 or consent of instructor

In this course we will qualitatively and quantitatively describe atmospheric boundary layer characteristics and processes. We will focus on the turbulent structure of the boundary layer and the factors that influence this structure over a variety of surfaces (e.g., soil, vegetation, marine) and under a variety of atmospheric conditions (e.g., stability, diurnal/nocturnal). This atmospheric layer is important to our daily lives because it is where we live, and it connects the small-scale fluxes of energy and mass to the large-scale atmospheric circulation.

Topics will include:

- a. mean boundary layer characteristics over different surfaces
- b. turbulent flow (description and prediction)
- c. boundary conditions and external forcings
- d. fluxes of energy and mass (e.g., water and carbon dioxide)
- e. similarity theory
- f. measurement and modeling techniques
- g. air pollution

Text: *An Introduction to Boundary Layer Meteorology*, by Roland B. Stull, 1st edition, Springer (required)