Department of Atmospheric Sciences

COURSE ANNOUNCEMENT – SEMESTER II – 2006-2007

ATMS 597: Special Topics
Section P: Microphysics Parameterization & Simulation

Call Number:	46286
Instructor:	Matt Gilmore, 202-I Atmospheric Sciences Bldg., 244-6062
Email:	gilmore@atmos.uiuc.edu
Room and Time:	113 Atmos Sci Bldg, 3:30 -4:50 T TH
Credit:	4 hours
Prerequisites:	ATMS 401, ATMS 510, and knowledge of FORTRAN, IDL, or another programming language. Prior knowledge of plotting software such as IDL, Excel, NCL, GRADS, or RIP will be helpful. ATMS 502 is optional

This hands-on graduate-level course examines the microphysics processes that are parameterized in NWP and research cloud models. This course is designed for students who want to understand how bulk parameterizations work with hands-on cloud modeling so that they can have a better appreciation and understanding of the results in their own thesis/research projects. It will include readings from historical and current literature, interactive classroom discussions, homework assignments, and a term project. Topics include but are not limited to:

representation of cloud physics processes in cloud models;
conservative versus non-conservative processes;
preventing over-depletion and excessive supersaturation;
keeping a microphysics scheme "stable"; and
how parameterization assumptions can affect forecasts.

As part of their class project and homework, students will modify and run cloud models.

Reference Materials:

The instructor's notes and various journal articles will be made available. In addition, students may wish to refer to the mandatory texts from previous courses:

1) *Atmospheric Science: An Introductory Survey*, by J. M. Wallace and P. V. Hobbs,
2) *A Short Course in Cloud Physics*, R. R. Rogers and M. K. Yau.