

*Revised Tuesday, August 28, 2018*

AT745 Syllabus

# **An Introduction to Global Atmospheric Modeling**

<http://kiwi.atmos.colostate.edu/group/dave/at745/>

Fall 2018

Monday and Wednesday 9:00 to 10:15

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This course introduces the students to comprehensive numerical global circulation models (GCMs) of the atmosphere, in the context of Earth System Models. Course material is largely based on journal articles, including landmark papers from the past as well as current readings. The course begins with an historical overview of the development of GCMs, up to the present day. This is followed by a general discussion of parameterizations for GCMs, with emphasis on the role of small-scale dynamical processes, including convection and turbulence. Some aspects are presented in depth. Discretization methods are discussed in general terms, without a lot of technical detail. Some emphasis is given to the Community Atmosphere Model, because of its ready availability. In addition, each student “adopts” a current model and develops summaries of some of its key properties. The last portion of the course is focused on current issues. Grading is based on in-class participation and student presentations.