

*Department of Atmospheric Sciences*

COURSE ANNOUNCEMENT – SEMESTER I – 2005-2006

**ATM 597: Special Topics**  
**Section N: Ecological Climatology**

*Call Number:* 43232  
*Instructor:* Peter Snyder, 204 Atmospheric Sciences Bldg., 244-0928  
*Email:* pksnyder@atmos.uiuc.edu  
*Room and Time:* 109 Atmos. Sci. Bldg., 11:00 – 11:50 M W F  
*Credit:* 4 hours  
*Prerequisites:* consent of instructor

*Description:*

Complex interactions exist between terrestrial ecosystems and the climate system with multiple feedbacks and non-linear processes driving changes to the landscape and the climate. These interactions sometimes result in unexpected behavior that is difficult to predict. It is important to understand the cycling of water, energy, chemical compounds, and trace gases between the biosphere and the atmosphere since extensive human disturbance of the Earth's surface is reaching global proportions.

This course is designed to introduce graduate students to the multidisciplinary nature of the interactions between the terrestrial biosphere and the climate system. This course will provide a quantitative approach to atmosphere-biosphere interactions at the regional and global scales with an emphasis on water, energy, and carbon exchange. Emphasis will be placed on ecosystems such as tropical, temperate, and boreal forests, tundra, grasslands and savannahs, and agro-ecosystems. The course will rely on the use of theoretical and applied climate and biosphere models of varying complexity to explore the interactions between the terrestrial biosphere and the climate system.

Graduate students with an interest in these topics and who have a background in the physical or biological sciences or environmental engineering are encouraged to enroll. A basic understanding of calculus, physics, and some knowledge of computer programming (e.g., Fortran, Stella, Matlab, etc.) are required.

*Text: Ecological Climatology: concepts and applications* by Gordon Bonan, Cambridge University Press, 2002.