

*Department of Atmospheric Sciences*

COURSE ANNOUNCEMENT – SEMESTER II – 2002–2003

**ATMOS 348: Atmospheric Chemistry**

(Same as CEE 348 and ENVST 348)

*Call number:* 00820

*Instructor:* Prof. Zhuangjie Li, Room 220, Atmos. Sci. Bldg., 333-5826,

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*Room and Time:* 109 Atmospheric Science Bldg., 9 a.m. M W F

*Credit:* 3 hours or 0.75 unit

*Prerequisites:* M E 207, CHEM 340, or ATMOS 301 or equivalent,  
or consent of instructor

This course will present current knowledge of the biogeochemical cycles of atmospheric trace gases, their interactions on global and regional scales, and their significance for the atmospheric photochemical and climate systems by providing a comprehensive treatment of the chemistry in the atmosphere. The important fundamental concepts that are central to understanding air pollutants, the formation, growth and dynamics of aerosols, the meteorology of air pollution, and the transport and removal of species in the atmosphere will be introduced.

Course Content:

1. **Introduction to the Atmosphere.** Origin of the atmosphere; Atmospheric structure and physical properties; Chemical composition of the atmosphere; Atmospheric dynamics.
2. **Fundamental Principles Governing the Chemistry in the Atmosphere.** Solar radiation and its absorption; Atmospheric mass transport; Photochemistry; Chemical kinetics; Equilibrium.
3. **Air Pollution Chemistry.** Atmospheric trace gases; Gas-phase Atmospheric Chemistry; Aqueous-phase atmospheric chemistry; Mass transfer; Aerosol; Acid rain.
4. **Biogeochemical Cycles of Atmospheric Trace Gases.** Sources, sinks/removal; Transport and distribution; Global budget; Anthropogenic and natural impact.

**Texts:** *Atmospheric Chemistry and Physics: From Air Pollution to Climate Change*, by J. H. Seinfeld and S. N. Pandis, John Wiley and Sons, 1997. (Required)