

EAS6410 ATMOSPHERIC CHEMISTRY

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Required texts: *Atmospheric Chemistry and Global Change*, ed. by G. P. Brasseur, J. J. Orlando, and G. S. Tyndall, Oxford University Press, 1999,
Or *Chemistry of the Upper and Lower Atmosphere*, by B. J. Finlayson-Pitts and J. N. Pitts, Academic Press, 2000.

Supplement text: *Introduction to Atmospheric Chemistry*, by D. J. Jacob, Princeton University Press, 1999.

Web: <http://apollo.eas.gatech.edu/EAS6410>

Class: ES&T L1116, MWF 1:05-1:55 pm

Office hours: MWF 2-3 pm

Syllabus:

Date	Topics	BOT Chapters
Jan 5, 7, 9	The earth system; atmospheric composition and structure	1, 16
Jan 12, 14, 16	Tropospheric and stratospheric circulation and transport	2
Jan 19, 21, 23	Radiation and greenhouse effects; the carbon cycle	3, 5, 15
Jan 26, 28, 30	Chemical kinetics; photolysis	3
Feb 2, 4, 6	Catalysis; reactions in droplets	3, 4
Feb 9, 11, 13	Numerical methods; stratospheric ozone: Chapman mechanism	12, 14
Feb 16, 18, 20	Odd-hydrogen and odd-nitrogen chemistry	6, 7
Feb 23, 25, 27	Halogen chemistry; polar ozone depletion	8
Mar 1, 3, 5	Distribution of tropospheric trace gases; mid-term exam	
Mar 8-12	Spring recess	
Mar 15, 17, 19	Tropospheric ozone; oxidizing power of the atmosphere (Group assignment and term paper topics due)	13
Mar 22, 24, 26	Tropospheric reactive nitrogen and hydrocarbons	7, 9
Mar 29, 31, Apr 2	Tropospheric sulfur and halogen chemistry	8, 10
Apr 5, 7, 9	Air pollution and environmental regulations	
Apr 12, 14, 16	Group Discussion	
Apr 19, 21, 23	Group Discussion; term paper presentation	

Grade:

Bi-weekly homework	25%
Midterm exam	20%
Discussion	15%
Term paper	40%

Library books on reserve

Atmospheric Chemistry and Global Change, ed. by G. P. Brasseur, J. J. Orlando, and G. S. Tyndall, [QC879.6 .A85 1999](#).

Chemistry of the Upper and Lower Atmosphere, by B. J. Finlayson-Pitts and J. N. Pitts, [QC879.6 .F563X 2000](#).

Introduction to Atmospheric Chemistry, by D. J. Jacob, [QC879.6 .J33 1999](#).

Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, by J. H. Seinfeld and S. N. Pandi, [QC879.6 .S45 1998](#).

Chemistry of the Natural Atmosphere, by P. Warneck, [QC879.6 .W37 2000](#).

Chemistry of Atmospheres, by R. Wayne, [QC879.6 .W39 2000](#).