ATMS/CHEM 358 Atmospheric Chemistry
Spring 2006

General Information

Instructor: Joel Thornton, Assistant Professor; Department of Atmospheric Sciences

Schedule: MWF 9:30 AM – 10:20 AM; 310C ATG Building

Grading: **Problem Sets** (about 10 in number): 10%
2 In-class exams: 60%
Final Exam: 30% Time and Location TBD

Contact Information

Office: 506 ATG Building

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Office hours: to be arranged at the second lecture

Class Web Site: https://faculty.washington.edu/joelt/ATMS_358/

NOTE #1: Please contact me if you have any questions. Conceptual issues are best handled in person (after class, office hours, or by special appointment).

Textbooks

The required textbook for the course is:
Introduction to Atmospheric Chemistry, **D.J. Jacob** Princeton University Press
A strongly recommended text is:
Physical Chemistry for the Atmospheric Sciences **P.V. Hobbs** Cambridge

Other excellent references are:
1. *Chemistry of Atmospheres,* **R. Wayne**; Oxford University Press
2. *Atmospheric Chemistry and Physics, from Air Pollution to Climate Change,* **J.H. Seinfeld and S.N. Pandis,** Wiley-Interscience
3. *Chemistry of the natural atmosphere,* **Peter Warneck**
4. *Chemistry of the Upper and Lower Atmosphere,* **Finlayson-Pitts and Pitts**, Academic Press

NOTE #2: Although I will be assigning readings from the text, you are only responsible for material covered in class and that dealt with on the problem sets.

Lectures

This is a rough outline for where we are heading. We will cover some topics in more detail than others, and the time frames will be flexible.

Week 1 **Introduction: basic concepts; measures of atmospheric composition; pressure and temperature**

Week 2: **Describing the fates of chemicals in the atmosphere: mass balance, lifetime, sources and sinks, simple models**

Week 3-4 **Fundamentals of Important Processes: transport, chemical kinetics, photochemistry**

Week 5-6 **Stratospheric Ozone Depletion: development of a detailed understanding**

Weeks 8-10 **Tropospheric Pollution: background chemistry of the troposphere, urban smog formation, acid rain**