

CEE/EAS 6790 Syllabus

Air Pollution Physics and Chemistry, CEE/EAS 6790-Atlanta, 3 Credits

Spring 2027

Instructor Information

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General Course Information

Description

This course is a graduate level introduction to air pollutants, and in particular their atmospheric dynamics and impacts. Topics include: air pollutants of interest, air pollution impacts, sources of air pollutants, atmospheric transport (including dispersion and deposition), atmospheric chemistry with a focus on tropospheric and stratospheric O₃, aerosol dynamics, control strategy development and air pollution management.

Course Learning Outcomes

Upon completion of this course, the student should have a knowledge of:

Which air pollutants are of concern

The sources and fate of these pollutants

Their atmospheric transport and transformation

The policies developed to help manage the problem

Required Course Materials

Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, J.H. Seinfeld and S.N. Pandis (S&P), Wiley Interscience (most recent edition)

Introduction to Atmospheric Chemistry, D.J. Jacob (DJ), Princeton University Press

Other useful texts: Cooper and Alley, "Air Pollution Control: A Design Approach"; Finlayson-Pitts and Pitts, "Atmospheric Chemistry"; Pielke, "Mesoscale Meteorological

Modeling”; Wark, Warner and Davis (WWD), “Air Pollution, Its Origin and Control.” WWD is an up-to-date book that provides a lot of information, though with less detail than S&P. If we were not using S&P and Jacob, we would use WWD.

Course website: Canvas. Homework and class readings (other than S&P) will be distributed using Canvas.

Grading Policy:

A>90; B>80; C>70; D>60

Assignments

- Midterm 1, 35%
- Midterm 2, 35%
- Final, 25%
- Homework, 5%

Description of Graded Components

Tests: Two midterms and one final exam open book and open notes but no electronic devices or than a calculator.

Course Policies

Attendance and/or Participation

We welcome questions whenever, and if the exposition is not clear (including the writing on the board), feel free to ask for clarification. Also, we are willing to address side topics in environmental engineering and science related to atmospheric chemistry and physics and starting off the class each day with a short question on some current issue of importance. Reading appropriate sections of the text book ahead of time will provide a deeper understanding and in-class discussions.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

GIT has, and we follow, an honor code. Each individual is to have read and agrees to follow the Institute Honor Code. Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Plagiarism will not be tolerated; note the following definition:

Plagiarizing is defined by Webster's as "to steal and pass off (the ideas or words of another) as one's own: use (another's production) without crediting the source."

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Collaboration, Group Work, and Use of Generative AI

You may work together on homework but any work you turn in must be written in your own hand. This includes all homework, tests and exam. We expect any member of the class to be able to replicate, by themselves, the homework they turn in as their own.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Late homework will be penalized accordingly unless the student has made arrangements with the professor prior to the due date. Make-up exams are given for illness, approved Institute activities or religious observances.