

EAS 4740: ATMOSPHERIC CHEMISTRY

COURSE SYLLABUS

Instructor: Jennifer Kaiser | jennifer.kaiser@ce.gatech.edu | ES&T 3224

Lecture: Mon/Wed 11:00 pm - 12:15 pm, MoSE 1224.

Lectures are in-person. Notes will be posted on Canvas. Audio recordings may be available depending on room set-up.

Office Hours: Mon 1:30 pm - 3:30 pm, or by appointment

Description: This course provides a general chemical description of the Earth's atmospheric system with a major focus on the two lowest layers of the atmosphere, i.e., the troposphere and the stratosphere.

Textbook: *Introduction to Atmospheric Chemistry*; D. J. Jacob. Available for free online.

Grading: Grades are composed of three components, weighted according to the distribution below. There is no curve and no extra credit. Final grades are rounded to the nearest whole percent. Grades are assigned as stated below.

- Problem sets (4 total) 40%
- Exams (2 total + Optional Final) 45%
- End-of-semester project 15%

A: $\geq 85\%$	B: 75-84%	C: 65-74%	D: 50-64%
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Problem sets: Due at the beginning of class on the due date. **Hard copies are preferred.** Electronic submissions are accepted (single PDF document only). Submit either fully on-paper or fully electronic.

Late work / extension policy: Late work is not accepted. This policy is in place so that solution sets can be posted in a timely manner. I provide one “late pass” exception: you may submit one problem set electronically up to 24 hr late with no penalty. You do not need to email me- no explanation is needed, and anything on Canvas submitted late is automatically noted as late. If you have already used your “late pass”, then further late work will not be accepted. If exceptional circumstances cause you to need further extensions or extensions on multiple assignments, contact the Office of Student Life. Medical information should not be emailed directly to a professor.

Exams: In-class, on paper, closed book/notes. The final exam is optional.

End-of-semester project: Students will review ongoing research as part of an end-of-semester project. The project involves both writing and oral presentations. Details will be made available on Canvas towards the end of the semester.

Academic Integrity: Students are expected to abide by the Georgia Tech Honor Code and to avoid academic misconduct, including but not limited to (a) distributing course materials to individuals not in the class, (b) possessing, using, or exchanging improperly acquired information in the preparation of problem sets and exams, and (c) use of material created or written by another individual or AI. Any student suspected of misconduct will be reported to the Office of Student Integrity.

Tips for success:

- Read the assigned text before coming to class.
- Come to class.
- Read the problem sets as soon as they are available. Work on them soon after covering the content in class.
- Problem sets are designed to both build and test deeper understanding. Each question is more detailed than what you'd have time for in an exam.
- Exams questions are simpler and more closely resemble in-class examples (which is a good reason to come to class!).
- Reach out early when you are “stuck”. Questions should be asked on Piazza. If you email a question, I will ask you to post it on Piazza. Please make your questions public. Posts can be made anonymously if desired.
- Prioritize your health.

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COURSE SCHEDULE

Day	Date	Reading	Topic	Due
M	9-Jan	Ch 1 & 2	Chemical and Physical Description of the Atmosphere	
W	11-Jan			
M	16-Jan	No class: MLK Day		
W	18-Jan	Ch 3	The Use of Simple Models in Atmos. Chem.	
M	23-Jan			
W	25-Jan			
M	30-Jan	Ch 4	Atmospheric Thermodynamics and Transport	PS1
W	1-Feb			
M	6-Feb	Ch 6 & 7	The Carbon Cycle and the Greenhouse Effect	
W	8-Feb			
M	13-Feb			
W	15-Feb	Review		PS2
M	20-Feb	Exam 1		
W	22-Feb	Ch 9	Chemical Kinetics and Photochemistry	
M	27-Feb	Ch 10	Stratospheric Chemistry	
W	1-Mar			
M	6-Mar			
W	8-Mar	Ch 11 & 12	Tropospheric Chemistry	PS3
M	13-Mar			
W	15-Mar			
M	20-Mar	No class: Spring break		
W	22-Mar			
M	27-Mar	Ch 8; Canvas Posting	Aerosols	
W	29-Mar			
M	3-Apr	Review		PS4
W	5-Apr	Exam 2		
M	10-Apr	--	Final Projects Topic/Overview	
W	12-Apr	Paper 1	Paper Discussion 1	
M	17-Apr	Paper 2	Paper Discussion 2	
W	19-Apr	Paper 3	Paper Discussion 3	
M	24-Apr	--	End of semester wrap-up	
W	3-May	Final Exam (Optional)		