

EAS 6430 | CEE 8823
EXPERIMENTAL METHODS IN AIR QUALITY
Spring 2020

Prof. Rodney Weber (rweber@eas.gatech.edu) | Prof. Jennifer Kaiser (Jennifer.kaiser@ce.gatech.edu)

Description: Introduction to experimental and field methods with a focus on measurements of atmospheric gases and particulates associated with poor air quality.

Educational Objectives: Upon completion of this course, the student should have knowledge of the theory behind commonly used and research-grade atmospheric instrumentation, as well as practical lab/field skills and data analysis.

Grades: 6 Lab experiments all of equal grade (i.e., 100/6 = 16.7%).

Lecture: There will be 1 lecture per week, Mon, 11:15 to 12:05 in Ford ES&T Building L1116.

Labs: Lab experiments will take place mainly in the ES&T penthouse lab. Sign up for labs will be arranged by TA. Lab reports due dates are shown below. Ideally 2 students per lab group, where each student is expected to submit their own lab report.

Week	Lecture Date	Lecture (Professor)	Lab Available	TA	Lab Due
1	1/6	Class intro (Weber/Kaiser)			
2	1/13	Intro to measurement techniques, Uncertainty, LODs, Error Characterization, Trace gas measurements part 1 (Kaiser)	Measurement of O ₃ /NO _x /CO	Linghan Zeng*	2/7
3	1/20	None (MLK Holiday)			
4	1/27	Trace gas measurements part 2 (Kaiser)			
5	2/3	Spectroscopy: Fundamental Principles (Kaiser)	HCHO IR	Kaiser	2/21
6	2/10	Spectroscopy: Atmos. Instrumentation (Kaiser)			
7	2/17	Measurements of Particle Size Distr. (Weber)	Particle Size Distributions	Linghan Zeng	3/6
8	2/24	Particle Size Distributions Theory (Weber)			
9	3/2	Measurements of Particle Composition (Weber)	Particle Composition	Linghan Zeng	3/23
10	3/9	Particle Composition Theory (Weber)			
11	3/16	None (Spring Break)			
12	3/23	Measurement of particle optical properties (Weber)	Particle Optics	Linghan Zeng	4/10
13	3/30	Optical Properties Theory (Weber)			
14	4/6	Mass Spec: Fundamental Principles (Kaiser)	Mass Spec	TBD	4/24
15	4/13	Mass Spec: Atmos. Instrumentation (Kaiser)			
16	4/20	Final Lecture for questions to finish labs (Weber/Kaiser)			

*Linghan Zeng, lhzen@gatech.edu

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