

AT716
Air Quality Characterization
Spring 2004

Prerequisite: AT560 and AT621 (or AT555) or consent of instructor

Instructor: Prof. Jeff Collett, collett@lamar.colostate.edu, x1-8697

Office Hours: by arrangement

Textbook: none, readings to be assigned from various sources

Grading: 30% class presentations; 20% class participation, 20% Standard Operating Procedures, 30% final project report

The objective of this course is to provide students with experience designing, conducting, and reporting on a field campaign to characterize air quality. The focus of the course in Spring 2004 will be a measurement campaign to characterize carbonaceous aerosol in the Ft. Collins area, with a particular emphasis on smoke from residential wood combustion. Aerosol samples will be collected using filter-based approaches, complemented by semi-continuous measurements of aerosol black carbon. Collected samples will be analyzed for particle mass, elemental carbon, organic carbon, water soluble organic carbon, and the wood smoke marker levoglucosan. A semi-continuous, dual-channel aethalometer will be operated in parallel for comparison and to map out spatial variability in wood smoke concentrations. Other measurements may be added depending on student interest.

Students will work as a team to design and conduct an appropriate measurement campaign capable of obtaining the desired results. Students will each have responsibility for taking the lead on individual aspects of the measurement campaign, sample analysis, and data interpretation. Each student will make at least two presentations in the class - one early in the semester outlining their portion of the measurement program and one at the end of the semester concerning results of the campaign and data interpretation. Each student will be responsible for providing written documentation of standard operating procedures for their measurements. All students in the class will collaborate on a written final project report.

AT716 Tentative Schedule

Week	Topic(s)
1/19	Introduction and planning
1/26	OC/EC measurement; Discussion of SOP's and determination of individual responsibilities
2/2	BC and WSOC measurements; measurements planning (site/equipment/supplies)
2/9	Aerosol mass measurement; Student Presentations of Measurement/Data Interpretation Objectives; Complete preparations for measurement campaign
2/16	Equipment Installation; begin sampling campaign
2/23	Quality Control and Quality Assurance - Draft Standard Operating Procedures Due; sampling continues
3/1	Sampling audits; sampling continues
3/8	Final week of sampling; Equipment Removal
3/15	Spring break
3/22	First data review; selection of samples for further analysis
3/29	LOD and LOQ; Sample Analysis
4/5	OC, EC, BC, WSOC; Sample Analysis
4/12	Results of Previous Studies (NFRAQS, Yosemite, Fresno); Second Data Review; writing assignments
4/19	QA/QC Results; Further data discussion
4/26	Further data discussion; Lab cleanup
5/3	Presentations; Final Report Due