

Air Pollution, ATS555

Colorado State University

Fall 2014

Mondays and Wednesdays @ 4:00 – 5:30

Room: Wagar 132

Instructor: Dr. Jeffrey Pierce <jeffrey.pierce@colostate.edu>, ATS 220
<http://pierce.atmos.colostate.edu>

Office hours: ENGR A205C (Changing to A102F mid-Sept) Wednesdays 9:15-10:30

Teaching assistant: Stephen D'Andrea (sdandrea@atmos.colostate.edu)

Office hours: ENGR A205C(Changing to A102F mid-Sept) ...

Prerequisites: CHEM 113 and (MATH 261 or MATH 340) and (PH 122 or PH 142).

Class Website: Blackboard for ATS555 (<https://ramct.colostate.edu/>)

Textbooks: Air Pollution: Its Origin and Control, 3rd Edition, by Wark, Warner and Davis, Addison Wesley, 1998.

Objectives:

Our overall goal will be to develop a working knowledge of basic air quality issues. Specific objectives include:

1. Develop an understanding of types and sources of air pollution.
2. Examine concentrations of air pollutants and their effects on health and welfare. Review regulations governing air pollution.
3. Examine the meteorological factors that contribute to air quality degradation.
4. Examine the basic chemistry of the atmosphere and how it contributes to secondary pollutant formation.
5. Consider methods for air pollution measurement and control.
6. Examine regional and global air pollution issues.

Course structure:

The course is offered for three credits. The class is conducted in a lecture/discussion format.

One **mid-term** and one **final examination** will be given.

A short **term presentation** on an air quality topic is required. The presentations will

be in the second half of the course. Details on format and timetable will be discussed later.

Several **homework assignments** will be made during the semester.

Grading:	Homework	30%
	Midterm test	20%
	Final exam	30%
	Term presentation.....	15%
	Participation	5%

Topics	Reading
Introduction/Air Pollution History	pp. 1-5
Air Pollution Types, Atmospheric Composition, Concentrations, and Sources	pp. 5-12, 44-47
Particulate Matter and Control	pp. 12-16 (Chapter 5)
Visibility	pp. 16-23
Exposure, and Health and Welfare Effects (Guest lectures by Drs. John Volckens [10/6] and Jennifer Peel [10/8])	pp.23-35, 38-43
Air Pollution Regulation	Chapter 2
Air Pollution Meteorology	Chapter 3
Dispersion of Air Pollutants	Chapter 4
Combustion and Gas control	pp. 341-357. Chapters 7 and 8
Mobile Sources	Chapter 10
Aerosol Physics and Control	Chapter 5
Photochemistry and ozone	Chapter 9
Climate Change	
Oil and Gas Development (Guest lecture by Dr. Tammy Thompson)	

CLASS POLICIES

UNIVERSITY POLICIES: Students are expected to follow the CSU Student Honor Pledge (<http://tilt.colostate.edu/integrity/honorpledge/>). This course will adhere to the CSU Academic Integrity Policy as found in the General Catalog (<http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf>) and the Student Conduct Code (<http://www.conflictresolution.colostate.edu/conduct-code>). At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

POLICY ON COLLABORATION: Students are encouraged to discuss homework assignments. However, each student must complete their own assignment. If I determine that students are simply copying assignments, I will pursue action through the Office of Academic Integrity (<http://tilt.colostate.edu/integrity/>). Any copying on tests will be similarly not tolerated.

POLICY ON LATE HOMEWORK ASSIGNMENTS: Late homework assignments will not be accepted, but I will drop the assignment with the lowest score.

POLICY ON REMARKING TESTS AND HOMEWORK: Students who disagree with how their assignment, test, or project has been marked should resubmit their work with a written explanation of their concern. The work will be re-evaluated by the instructor in its entirety.

POLICY ON MISSED TESTS: Alternative arrangements for completing missed tests will be made given the submission of appropriate documentation.