

GEOS 502: Air Pollution Meteorology

Semester	Spring, 2016
Instructor	Dr. Shane D. Mayor
Lectures	Mon., Weds., and Fri. 1:00–1:50 PM in Physical Science Building (PHSC) 130
Office hours	MW 3:00 - 4:00 PM (Please e-mail first. If not in office, look in PHSC 128.)
Office	PHSC 126
Mailbox	Department of Geological and Environmental Sciences office (PHSC 217)
Phone	530–898–6337
E-mail	sdmayor@csuchico.edu
Class webpage	http://phys.csuchico.edu/sdmayor/GEOS501_F15/index.html
Required Books	<p><i>An Introduction to Boundary Layer Meteorology</i>, By Roland B. Stull ©1988, Kluwer Academic Publishers. ISBN 90-277-2769-4 Available from http://amzn.com/9027727694 for \$92.</p> <p><i>Air Quality</i>, Fifth Edition, By Godish, Davis, and Fu ©2015, Taylor and Francis Group, ISBN-13: 978-1-4665-8444-0 Available from http://amzn.com/1466584440 for \$75.</p>
Prerequisite	MATH 121; either PHYS 202B or PHYS 204C. Recommended: GEOS 501
Course Format	This is a lecture-based course without labs. It is important that you procure and read the required book(s) <i>and</i> come to class. It is highly advisable to take notes in class. Please inform the instructor by e-mail in advance if you cannot come to a class due to illness or for other reasons. Attendance will likely be tracked and used as a factor in your grade.
Course Overview	<i>Air Pollution Meteorology</i> is a vast subject that draws mainly upon two disciplines: boundary layer meteorology and atmospheric chemistry. The former controls the transport and dispersion of near ground-level sources of pollutants where turbulence plays a central role as a transport mechanism. The later provides the theory for which constituents and pollutants transform through chemical reactions that often involve radiation and small particles. The field is very important given the effects of air pollution on health, the economy, the environment, and climate.
Preparation	All of the students enrolled in the course this semester have completed GEOS 400 (<i>Physical Meteorology</i>) and GEOS 501 (<i>Dynamic Meteorology</i>). It is taken for granted that students have an understanding of basic atmospheric thermodynamics, radiation, and causes of large-scale air motion.

Learning Objectives	<ol style="list-style-type: none"> 1. Gain an understanding of turbulent transport and how it is measured and modeled. 2. Become familiar with atmospheric boundary layers and why they are so important in the atmospheric system. 3. Learn about the tools available to predict transport and dispersion. 4. Know the most important air pollutants, their sources, and current efforts to control them. 5. Understand the impact of air pollution on society.
Assignments	<p>Handed in materials must be typeset in L^AT_EX.</p> <p>Programming will be required for some assignments. Python or IDL required.</p>
Where to get L ^A T _E X	http://phys.csuchico.edu/ayars/427/LaTeX.php?section=install
Course Grade	Your course grade will be based upon a set of exams, assignments, and attendance. The instructor reserves the right to adjust the weights and final grades according to other factors due to the newness of the course.
Dropping & adding	You may drop without obtaining permission until Friday, February 5. From February 6 to February 19, you must obtain permission from the instructor to drop. After Friday, February 19, you will need a serious and compelling reason to drop and your request must be approved by the Department Chair and the College Dean.
Classroom etiquette	<p>Please do not eat in lecture. The noises and smells may be a distraction for your peers. Plan your day so that you have adequate nourishment before class.</p> <p>Please come to class on time. Walking in several minutes late is a distraction for all. We understand if it happens once or twice a semester, but chronic lateness projects lack of professionalism and will be taken into account for your course grade.</p> <p>Instructor reserves the right to modify this syllabus at any time.</p>

GEOS 502 (Air Pollution Meteorology), Spring 2016, Tentative Schedule

Mon.	25	Jan.	
Weds.	27	Jan.	
Fri.	29	Jan.	
Mon.	1	Feb.	
Weds.	3	Feb.	
Fri.	5	Feb.	Last day to add or drop without permission from the instructor.
Mon.	8	Feb.	
Weds.	10	Feb.	
Fri.	12	Feb.	
Mon.	15	Feb.	
Weds.	17	Feb.	
Fri.	19	Feb.	No adding or dropping after this date without Chair's and Dean's approval.
Mon.	22	Feb.	
Weds.	24	Feb.	
Fri.	26	Feb.	
Mon.	29	Feb.	
Weds.	2	Mar.	
Fri.	4	Mar.	
Mon.	7	Mar.	
Weds.	9	Mar.	
Fri.	11	Mar.	
Mon.	14	Mar.	Spring break. No classes.
Weds.	16	Mar.	Spring break. No classes.
Fri.	18	Mar.	Spring break. No classes.
Mon.	21	Mar.	
Weds.	23	Mar.	
Fri.	25	Mar.	
Mon.	28	Mar.	
Weds.	30	Mar.	
Fri.	1	Apr.	
Mon.	4	Apr.	
Weds.	6	Apr.	
Fri.	8	Apr.	
Mon.	11	Apr.	
Weds.	13	Apr.	
Fri.	15	Apr.	
Mon.	18	Apr.	
Weds.	20	Apr.	
Fri.	22	Apr.	
Mon.	25	Apr.	
Weds.	27	Apr.	
Fri.	29	Apr.	
Mon.	2	May	
Weds.	4	May	
Fri.	6	May	
Mon.	9	May	
Weds.	11	May	
Fri.	13	May	
Mon.-Fri.	16 - 20	May	Final Exam week