

Syllabus

COURSE (26/375/560/01/19873): AIR POLLUTION MEASUREMENTS

Spring2018

Rutgers University at Newark

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CLASSROOM: 448 Conklin Hall
175 University Avenue
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LECTURE TIME: 6:00-9:00 pm, Tuesday

OFFICE HOUR: by appointments

COURSE OBJECTIVE: This course focuses on the principles of air pollution and measurement techniques for ambient air pollutants. Topics include sources and properties of selected air pollutants, major chemical transformation and removal processes affecting air quality, sampling and analyses techniques, regulations on air pollution and potential effects of air pollution on human health. Hand-on training will be given by operations of selected air samplers in the field, plus sample processing and analyses in the lab. Literature reviews and team paper writing will be assigned for writing skill improvement.

REFS BOOKS: (1) Air Quality, 4th edition, by Thad Godish, CRC Press, 2003.
(2) Chemistry of the Upper and Lower Atmosphere: Theory, Experiments, and Applications, Finlayson-Pitts & Pitts, Academic Press, 1999.
(3) Atmospheric Chemistry and Physics-From Air Pollution to Climate Change, J. Seinfeld&S. Pandis, John Wiley & Sons, 1998.

COURSE STRUCTURE: Combination of:
(1) lectures/discussions/presentations,
(2) air sampler operation and analysis of air samples,
(3) reviews of research papers and term paper writing,
(4) exams.

GRADING: Midterm exam (close-book): 20%
Final exam (close-book): 40%
Term paper (research proposal)*: 15%
Review writing (4 assignments): 20%
Class presentation***: 5%

LECTURES:

<u>DATES</u>	<u>SUBJECTS</u>	<u>NOTES</u>
01/16	Introduction & atmos. properties	
01/23	Principles of air pollution (1)	
01/30	Principles of air pollution (2)	1 st review due
02/06	Field measurement designs	
02/13	Measuring total particulate matter	
02/20	Measuring size-segregated aerosol particles	2 nd review due
02/27	Measuring gas-phase air pollutants	
03/06	Measuring precipitation and deposition (Mid-term exam)	
03/10-18/17	<i>Spring Recess, no class</i>	3 rd review due
03/20	Cleanroom procedures, mass determination	
03/27	Air sample process and analyses (1)	
04/03	Air sample process and analyses (2)	4 th review due
04/10	Atmospheric data analyses and modeling	
04/17	Regulations and policy	Term paper due
04/24	Student presentations	
05/08	<i>Final exam</i>	6:20 -9:20 pm

* Format of term paper (a research proposal): 1-page cover: title and summary, 5-pages project description (figures or tables are not included), 1-page budget and justification, plus references etc.; single-space, 12-point, Times New Roman, left-sided, 1" margin.

** Format of presentation (your research proposal defense): 10 minutes (1 point deduction for each +/- min), plus 2-3 minutes for questions.