

Three Rivers Community Technical College
Proposed 2011 Spring Course Outline
AIR QUALITY

Course Title: **Air Quality**

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Lecture 3 hrs **Laboratory** 0 hrs **Credit** 3 hrs **Contact** 3 hrs

Course Description: A comprehensive overview of outdoor and indoor air quality, plus noise pollution. Topics include meteorological processes and atmospheric chemistry, sources of air pollution, ventilation, and effects of pollutants on health, wildlife, and property. Regulations, monitoring and control techniques will be discussed.

Method: Lecture, class and home exercises, led discussion. We will view several videos related to air topics. Library research and group presentations are required.

Text: (A) *Air Quality, Thad Godish*, Lewis, (B) *Introduction to Environmental Engineering and Science, Gilbert Masters, Prentice-Hall*, and supplementary readings.

Prerequisites : Chemistry

For the IS you will be required to provide a five page report which will be handed into me prior to providing a PowerPoint Presentation, same topic, for the STRONG CT environmental research class. You may choose any topic pertaining to an Air Quality issue. You can do this assignment together or separately. I leave that up to you. You will be required to do all the homework assignments and pass in at the end of the semester in a binder. Work together but as a team. The homework assignments and the five page paper and PowerPoint presentation will be count as your final grade. You will not have quizzes or a final test.

1. Meteorology and Atmospheric Dynamics	Chapter/page	Homework	week
a. weather, air movement, temperature	(A)chs.1,3,&4,	(A)pg20prob.2,4,18	1 & 2
b. dispersion of pollutants	(B)ch8, pgs453-465	& 19	
c. cleansing processes		(A)pg91prob.1,4,5,12	
d. units of measure/conversion factors		(A)pg135prob.4,7,8	
	(A)pg639-642	&14	
2. Types of Air Pollutants			
a. overview of gas laws	(A) ch2,13	(B)pg36prob1.14	2& 3
b. gaseous pollutants	(B)ch1	& 1.16	
c. particulate	(B) pg327-330		
d. toxic pollutants			
3. Sources of Air Pollutants			
a. stationary sources	(B)pg363-380	(B)pg444 prob. 7.6	3 & 4
b. mobile sources	(B)pg405-426	& 7.15	
c. line and area sources	(A)ch9		
d. primary vs. secondary sources		Quiz 1	
4. Effects of Air Pollutants			
a. health effects	(A) ch5 & 6	4-5 page paper	5 & 6
b. property damage			
c. acid precipitation and ecosystem damage			
5. Measurements of Air Quality and Emissions			
a. particulates	(A)ch7	(B)pg447prob.7.22	7 & 8
b. gaseous pollutants		& 7.23	
c. ambient air monitoring			
d. stack sampling			
		Quiz 2	
6. Air Pollution Control			
a. control of particulates	(A)ch 9,10	(A)pg339prob 1,3,6,	9& 10
b. control of gaseous pollutants		& 7,8,9	
c. vehicular emissions		paper due	
7. Regulations			
a common law	(A)ch8	(A)pg284prob.1,4,8	11 & 12
b. the Clean Air Act		& ,9,12,14	
c. ambient air quality standards			
d. attainment vs nonattainment areas			
e. mobile sources			
f. toxic air pollutants			
g. implementation plans			
8. Ventilation			
a. air supply	(A)pg374-376	(B)pg449prob.,7.44	13

b. indoor air quality indicators	(B)pg437-442	& 7.45	
9. Indoor Air Pollutants		Quiz 3	
a. sources	(A)ch11		14
b. measurement	(B)pg426-443	(B)pg443prob.,7.1	
c. corrective measures		& 7.7	
10. Noise Pollution			
a. sound concepts	(A)ch12	(A)pg404prob.1,2,7	15
b. health effects		& 8,10	
c. control			
		Final	16