

CIVE438 POLLUTION CONTROL ENGINEERING  
 Fall Semester 2008  
 M-T-W-R 9:00 AM  
 C 142 Clark  
 Instructor: T. G. Sanders  
 Office and Telephone: A207E, 491-5448  
 Office hours: 1-3 PM MTW

Lecture Number	Date	Topic	Reading Assignment	Problem Assigned
1	8/25	Introduction	1-40	"Making the Grade"
2	8/26	Environmental Engineering	41-52	Life cycle of Schistosome
3	8/27	Hydrology	97-107	2-2
4	8/28	Runoff Analysis (Quiz I)	128-133	3-3
5	9/2	Reservoir Storage	108-110	3-33, Probabilistic design
6	9/3	Groundwater	133-146	Well derivation
7	9/4	Groundwater Flow (Quiz II)	153-155	3-56,358
8	9/8	Water Treatment	Any chemistry text	4-28
9	9/9	Chemistry Review	187-198	4-29
10	9/10	Hardness(skip pgs. 244 & Fig 4-18 )	235-247	4-59
11	9/11	Hardness Removal (Quiz III)	247-255	4-67
12	9/15	Removal Calculations		4-71
13	9/16	Water Quality	213-226	"Russia's Legacy...."
14	9/17	Water Quality Too (Quiz IV)		
15	9/18	<b>EXAM I</b>	294-307	
16	9/22	Disinfection	354-365	5-2, 5-5, 5-13
17	9/23	Water Quality Management	365-372	5-19
18	9/24	Determination of BOD Constants	372-390	5-38
19	9/25	Biochemical Oxygen Demand (Quiz V)		Min. DO Derivation
20	9/29	DO Sag Curve	391-400	5-48
21	9/30	Water Quality of Lakes	449-455, 419-426	Killer lakes
22	10/1	Wastewater Treatment	427-437	6-1, 6-6
23	10/2	Characteristics of Wastewater (Quiz VI)	459-464	6-2
24	10/6	Activated Sludge	482-489	6-18, 6-29
25	10/7	Trickling Filters	489-493	6-16, 6-41
26	10/8	Oxidation Ponds	519-525	6-48, 6-49
27	10/9	Sludge Dewatering (Quiz VII)	493-497	Sludge truck volume
28	10/13	Advanced Wastewater Treatment	547-562	7-3, 7-17
29	10/14	Air Pollution	572-580	7-19
30	10/15	Origin and Fate of Air Pollutants	580-588	7-22, 7-24

31	10/16	Air Pollution Meteorology (Quiz VIII)	589-597	7-30, 7-31
32	10/20	Atmospheric Dispersion	Handout, 2-4	Own Ethical Dilemma
33	10/21	Ethics in Engineering	32-35	“Whistle Blower...”
34	10/22	Ethics in Engineering	Handouts	ASCE Canons of Ethics
35	10/23	Ethics in Engineering (Quiz IX)		“Defiant Engineer...”
36	10/27	Ethics Again		
37	10/28	Code of ASCE		
38	10/29	<b>EXAM II</b> (Seven Canons of Ethics, 20% of Exam)	652-659	
39	10/30	Noise Pollution (Quiz X)	699-708	8-3, 8-25
40	11/3	Noise Protection in Highway Design	Handout	8-26
41	11/4	Sanitary Sewer Design		Sanitary Sewer
42	11/5	Sewer Design		
43	11/6	Sewer Design (Quiz XI)		
44	11/10	Sewer Design		
45	11/11	Sewer Design		
46	11/12	Storm Sewer Design	116-119	Storm Sewer
47	11/13	Storm Sewer Design (Quiz XII)	125-128	
48	11/17	Storm Sewer Design	736-745	
49	11/18	Solid Wastes or Trashcan Technology	745-768	Trash as an opportunity
50	11/19	Collection of Solid Wastes	762-784	9-7
51	11/20	Truck Routing(Quiz XIII)	775-783	9-8
	11/22-30	Thanksgiving Day Holidays		
52	12/1	Sanitary Landfill Design	814-819	Landfill design
53	12/2	Hazardous Wastes		Gas volume & derivation
54	12/3	<b>EXAM III</b>	819-825	
55	12/4	Risk Assessment(Quiz XIV)	837-846, 851-856	Love Canal
56	12/8	CERCLA and SARA	887-892	Times Beach
57	12/9	Land Disposal	925-931	
58	12/10	Ionizing Radiation	946-947	
59	12/11	Review (Final Definitions Quiz)		
	12/19	<b>FINAL EXAM</b> (7:00 AM-11:00 AM)	1-789	Everything

Course Text:

Davis, M. L. and Cornwell, D. A., **Introduction to Environmental Engineering**, Fourth Edition, McGraw-Hill Inc.

### Course Requirements:

1. Problem sets and individual problems will be assigned on a weekly basis. Single problems will be due next class period and the problem sets will be due one week from day assigned. Only homework submitted on engineering paper (either green or white) will be accepted. Poor grammar and spelling will affect grade.
2. No credit for late homework.
3. Individual work is much preferred over collaborative efforts, even at the expense of correct answers.
4. There will be three one-hour exams, a two-hour final exam and a short definitions quiz once a week (first 10 minutes of Thursday lectures). All midterm exams, quizzes and final exam will be closed books and closed notes. In addition no cell phones and only FE exam approved calculators can be used.
5. Final grade determination:

Homework	- 100 points
Short quizzes	- 150 points
Hour exams	- 300 points
Final exam	- 200 points

### Course Objectives:

1. To become conversant with the technical language and terminology used by the Environmental Engineering Profession.
2. To develop an awareness of the environmental problems, issues and controversies currently facing us locally, nationally and internationally.
3. To understand the basic concepts required for problem solving dealing with water supply, wastewater removal, solid wastes, air pollution and noise pollution.
4. To understand the Civil Engineering Canons of Ethics and their importance.
5. To be able to pass the Environmental and Sanitary engineering sections of the Professional Engineering Exam.

### **Ideal learning algorithm:**

Read the text ⌘ try the problem ⌘ Listen to the lecture ⌘ Do the problem

If you hear it, you'll forget it.

If you see it, you'll remember it.

If you do it, you'll know it.

If you teach it, you'll understand it. (Paraphrased from Einstein)

And

**“Never make your directions to students so specific as to rob them of the pleasure of discovering things for themselves.”** Florence Rene Sabin MD