

ENVH 446 - Hazardous Waste Management

Winter Quarter, 2009

- Instructor: John C. Kissel, Ph.D.
Professor, Department of Environmental and Occupational Health Sciences
4225 Roosevelt Ave NE, Rm. 2337; 543-5111
jkissel@u.washington.edu
- Office hours: To be arranged (drop-ins welcome except immediately before class)
- Class Period: MWF 1:30-2:20
- Location: HSB T478
- Description: Characterization of hazardous wastes and introduction to pertinent federal and state regulations. Discussion of significance of hazardous wastes and related facilities with respect to human and environmental health. Description of management options at post- and pre-generation stages. Supplemented with case studies.
- Objectives: At conclusion of the course students should be able to: define hazardous waste; describe the primary provisions of RCRA and CERCLA; demonstrate familiarity with current hazardous waste management issues and jargon; recognize and interpret terminology used to quantitatively describe chemical exposure and risk; interpret the physical-chemical properties of individual chemicals with respect to their impact on fate, transport and human exposure; describe key epidemiological investigations of hazardous waste sites; state conditions under which exposure pathways are likely to be completed; describe technological approaches to waste destruction and containment; and contrast pre-generation, pre-release, and post-release management options.

Grading:	Midterm	30%
	Final	30%
	Problem sets #1-6	30%
	Participation	10%

Text : No text. Notes available by means to be announced. Additional reserve readings have been assembled from publications of government agencies and the open literature.

Web sites of interest are listed in an electronic supplement that can be found at:

<http://depts.washington.edu/~jkspage/envh446.html>

Course reserves will be posted at:

<http://www.lib.washington.edu/services/course/>

For individuals who wish to own a hazardous waste text (for their own career purposes – not needed for this class), Hazardous Waste Management, LaGrega, M., et al., McGraw-Hill, c. 1200 pp., 2nd ed., 2001 is perhaps the best one out there.

ENVH 446 Tentative Schedule

Winter 2009

			#	Topic	Reading*	Hwk due
Jan	5	M	1	Course intro, material flows	Ch 1	
Jan	7	W	2	Waste definition (RCRA), waste quantities	Ch 1	
Jan	9	F	3	Regulatory basics	Ch 2	
Jan	12	M	4	Current issues (Superfund reauthorization)	Ch 2	
Jan	14	W	5	Chemical properties and fate (intro, fugacity approach)	Ch 3	
Jan	16	F	6	More chemistry (basic concepts)	Ch 3	HRS
Jan	19	M		<i>MLK Holiday</i>		
Jan	21	W	7	More chemistry (example problems)	Ch 3	
Jan	23	F	8	Public health significance (intro, perception, equity)	Ch 4	Fate
Jan	26	M	9	More PH significance – trends; RA paradigm	Ch 4	
Jan	28	W	10	More PH significance	Ch 4	
Jan	30	F	11	Waste site epidemiology intro	Ch 5	Risk
Feb	2	M	12	More waste site epidemiology – case studies	Ch 5	
Feb	4	W	13	More waste site epidemiology – Woburn MA	Ch 5	
Feb	6	F	14	Mid-term exam (lectures 1-13)		
Feb	9	M	15	Exposure investigation - Bunker Hill, ID	Ch 6	
Feb	11	W	16	Exposure investigation - Bloomington, IN	Ch 6	
Feb	13	F	17	Exposure investigation – Anniston AL; Ruston WA	Ch 6	
Feb	16	M		<i>Presidents' Holiday</i>		
Feb	18	W	18	Post generation/pre release mgt intro; recycling - "Fear in the Fields"	Ch 7	
Feb	20	F	19	Incineration #1	Ch 7	
Feb	23	M	20	Incineration #2	Ch 7	
Feb	25	W	21	Landfill #1;	Ch 7	Mgt 1
Feb	27	F	22	Landfill #2	Ch 7	
<i>TBD</i>	<i>TBD</i>	<i>Sat</i>		<i>Optional 8 hr HAZWOPER session</i>		
Mar	2	M	23	Pre-generation mgt: waste minimization, intro to environmental economics	Ch 10	Mgt 2
Mar	4	W	24	Post release mgt: intro; worker safety	Ch 8	
Mar	6	F	25	Post release mgt: site remediation, cleanup stds, NPL deletion	Ch 8	
Mar	9	M	26	natural resources damages	Ch 9	Minim'n.
Mar	11	W	27	more environmental economics	Ch 10	
Mar	13	F	28	Pre-generation management: Industrial Ecology	Ch 10	
Mar	16	M		Final exam (2:30-4:20)		

*Additional materials may be provided as handouts or assigned as web urls