Syllabus for Elements of Solid Waste Management & Treatment

Course Number: 11:375:307
Instructor: Ross M. Hull (rhull@hotmail.com; (908) 338-6432)
Lecture Times: M, W 5:35 – 6:55 pm
Lecture Location: ENR 223
Course Text: Tchobanoglous, G. & Kreith, F. (2002). Handbook of Solid Waste Management, 2nd ed. McGraw-Hill, New York.

Learning goals: This course will address goals 1, 2, 4, and 7 of the Environmental Science curriculum.

Instructional activities and assessments:

Goal 1: Apply knowledge from the sciences and mathematics to environmental problems and solutions

Instructional Activity: Knowledge of chemistry, microbiology, and mathematics will be applied to predict potential negative environmental impacts of solid waste management practices

Assessment Activity: Quizzes and midterm and final exams will require students to qualitatively and quantitatively assess sizing of solid waste facilities and pollutant potentials of solid waste management systems. Grades on quizzes (10%) and midterm (40%) and final exams (50%) will determine the overall assessment.

Goal 2: **Use the skills and modern environmental science techniques and tools necessary for a successful career in the field**

Instructional Activity: Life-cycle assessment (LCA) technique will be used to discuss best management practices in regards to recycling and disposal

Assessment Activity: Midterm (50%) and final exam (50%) questions

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Goal 4: **Function effectively on multidisciplinary teams**

Instructional Activity: Students will work in teams of 2 for class paper/presentation

Assessment Activity: Paper (50%) and presentation (50%)

Goal 7: **Contemporary environmental science issues and the impact of environmental science in a global and societal context**

Instructional Activity: Link between global warming and certain solid waste management facilities will be quantitatively examined. Case studies of solid waste management practices in other countries will be examined and discussed.

Assessment Activity: Grades on quizzes (10%) and final exam (90%)

Approximate Schedule/Topics (subject to change):

Week	**Topics Covered**
1	Introduction/Regulations/Planning/Siting
2	Characteristics of solid waste
3	Source reduction and toxicity
4	Collection of solid waste
5	Recycling
6	Recycling continued/LCA
7	Composting
8	Anaerobic digestion and other organic waste treatment methods
9	N/A
10	Solid waste combustion to energy
11	Solid waste combustion to energy continued
12	Landfilling
13	Landfilling continued
14	LCA/Solid waste management across the globe (Case studies: Europe, China)
15	Presentations
16	Final exam review

Grading:	Class Participation	15%	(Includes attendance)
	Quizzes	15%	(Every M, unless otherwise noted in class)
	Midterm	20%	(March 13)
	Paper/Presentation	25%	(April 29/April 29 & May 1)
	Final Exam	25%	(TBD)

Site visits: Three site visits will occur on Fridays towards the mid to latter parts of the semester. Your attendance will be an element of the class participation component of your grade. The dates/times are to be determined.