Instructor: David Jensen

Course Title: HAZARDOUS WASTE TREATMENT

Course Number: ESCI 5370.001

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Office: NRC 1100  Office Hours: 11:00-1:00 F

Course Description: This course will provide a historic perspective, including laws and regulations, regarding hazardous waste operations and emergency response. This will be followed by techniques for handling hazardous materials, responding to spills and the proper disposal of wastes in an environmentally safe manner. Lab exercises involve hazard recognition, use of personal protective equipment, emergency response, spill cleanup and safe handling of hazardous substances.

Student Learning Outcomes: Successful participation and study in this course will enable students to:

1. Demonstrate an understanding of key standards and regulations governing the planning, prevention, response, and cleanup of hazardous materials spills.

2. Identify which organizations are responsible for Hazardous Materials spill prevention and response.

3. Be able to demonstrate how to locate information on the hazards posed by chemicals.

4. Be able to select the proper Personal Protective Equipment for a specific HAZMAT incident.

5. Describe the Incident Command System (ICS) and demonstrate how response actions are organized and managed.

6. Describe basic hazardous waste treatment technologies used to reduce the hazards.

Evaluation Criteria: Take home assignments will be given periodically and are due one week after they have been handed out. Late assignments will be docked 5 points per weekday. No assignment will be accepted after one week past the due date. Assignments and due dates are included in the topic schedule attached.
Many lab periods will involve field exercises regarding recognizing and responding to a hazardous materials incident. Students are expected to participate in these exercises as assigned by the Instructor.

Graduate students will develop classroom presentations involving Internet Hazmat References.

Graduate students will have additional ICS training beyond the *Basics of ICS*.

Graduate students will act as Team Leaders during Field Exercises and Incident Command Staff Officers during the hazmat response exercise at the end of the semester.

Graduate students will develop classroom presentations for a selected hazardous waste treatment technology.

**Grading Criteria**

1. Examination I  
20%
2. Examination II  
20%
3. Final Exam  
20%
4. Field Exercises and ICS  
20%
5. Presentations & Homework  
20%

**Policies:**

Regular class attendance will be documented. Students who must miss a class are responsible for obtaining notes and instructions or assignments from other class members.

Three major examinations will be given during the semester. Students are expected to be prepared and complete these exams on the scheduled exam dates (see topic schedule attached). Students with an excused absence from the instructor must make up the exam prior to the next class period. (Note: Having more than one exam on the same date does not warrant an excused absence.) Unexcused absences for a scheduled exam will result in a grade of “0” for that exam.

Make Up Exams: Make up exams will only be given for University excused absences to attend University sanctioned events (i.e. athletic teams, environmental conference) or documented medical reasons. In those cases it is the responsibility of the student to arrange for scheduling of a make-up exam no later than one week after the regular scheduled exam.

Academic Integrity and Honesty: All students are expected to conform to college-level standards of ethics, academic integrity and honesty. By enrolling in this course, you agree to be bound by the Regulations and Procedures published in the TAMU-CC
STUDENT HANDBOOK. Students are expected to do their own work and not duplicate that of others. Duplicative work will be considered cheating and the student will receive a zero on that assignment/exam.

Class Conduct: All students are expected to follow proper Classroom behavior and treat other students and the instructor with respect. Disruptive behavior will cause the student to be asked to leave the class for the day. Repeated disruptive behavior will make the student subject to dismissal from the class for the semester. Cell phones and pagers will be turned off during class time. If cell phones disrupt the class, you will be asked to leave and not return that class period. No food or drink allowed in the classroom.

NOTICE TO STUDENTS WITH DISABILITIES: Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office, located in Driftwood 101, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

ACADEMIC ADVISING: The College of Science and Technology requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. The College's Academic Advising Center is located in Faculty Center 178, and can be reached at 825-6094.

GRADE APPEAL PROCESS: As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

Required Textbook:


NOTE: Material covered in this course includes training required by the Occupational Safety and Health Administration (OSHA) for personnel working in Hazardous Waste Operations and Emergency Response (HAZWOPER) as described in 29 CFR 1910.120. Students seeking certification for this OSHA training MUST attend all class sessions and participate in demonstrations, experiments, and field exercises during the lab sessions – including a tabletop exercise and a simulated spill response in full personal protective equipment.

ESCI 5370 HAZARDOUS WASTE OPERATIONS
AND EMERGENCY RESPONSE
FALL 2011
Topics and Schedule

Aug. 26  LAB: Hazmat Inventory

Sept. 01  Chapter 7: Chemical and Physical Properties of Hazardous Materials
Sept. 02  LAB: Hazmat Chemistry Demo.  Note: Lab may run overtime.

Sept. 08  Chapter 1: The Hazardous Materials Management System
Sept. 09  LAB: Chapter 2: Health and Safety

Sept. 15  Hazardous Waste Management (Handout)
Sept. 16  LAB: Site Safety Plans, Cooling Vests and Medical Monitoring

Sept. 22  Chapter 3: The Incident Management System and Assign ICS Roles and Responsibilities.  (NIMS ICS training certificates due).
Sept. 23  LAB: ICS Forms and Incident Action Plans, “The Emergency Operations Center” (Video)

Sept. 29  Chapter 5: Site Management and Control
Sept. 30  LAB: Emergency Response Guidebook and Exam Review

Oct. 06  Exam I
Oct. 07  LAB: Chemical Reactivity Worksheet Lab Quiz I. (ERG worksheet due)

Oct. 13  Chapter 6: Identify the Problem
Oct. 14  LAB: Waste Treatment Technology Presentations and NIOSH Pocket Guide to Chemical Hazards (Reactivity worksheet due)
          *CAMEO (NIOSH Worksheet due)*

Oct. 27  Chapter 8: Personal Protective Clothing and Equipment *(MSDS worksheet due)*
Oct. 28  LAB: Don and Fit SCBA’s. Operation of Cascade Air Supply System. **Note: Lab may run overtime. (CAMEO worksheet due)**

Nov. 10  **Exam II**
Nov. 11  LAB: *Wireless Information System for Emergency Response (WISER) Lab Quiz II.*

Nov. 03  Chapter 11: Decontamination, including Decon Set-up (Demo) and the Hazardous Materials Table *(WISER worksheet due)*
Nov. 04  LAB: Level A Dress Out. **Note: Lab may run overtime.**

Nov. 17  Chapter 10: Implementing Response Objectives. “Static Electricity” (Video) *(PPE worksheet due)*
Nov. 18  LAB: Spill Response Techniques and Materials, including Overpacking a Container (Demo) “Confined Space Entry” (Video) *(HMT worksheet due)*

Nov. 24  Holiday
Nov. 25  Holiday

Dec. 01  **Tabletop Exercise**
Dec. 02  LAB: Full Deployment Level A Spill Response Drill **Note: Lab may run overtime.** Chapter 12: Terminating the Incident

Dec. 08  **Final Exam**