HAZWOPER 40-Hour Course
This intense short course includes the same course topics and materials offered during full semesters but the content is consolidated into one 40-hour week (HAZWOPER) plus one 8-hour day (HAZWOPER Supervisor). This course is designed to provide professional certification of initial safety training for environmental science or emergency response students. It meets the off-site training requirements for U.S. OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations as specified in 29 CFR 1910.120. The course is recommended for students expecting to enter the environmental workforce or internships within the next year.

Notice to All Students Including Students with Disabilities: 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. OSHA regulates the safety and health of employees involved in response operations at uncontrolled hazardous waste sites, employees engaged in certain hazardous waste sites, employees engaged in certain hazardous waste treatment, storage, and disposal facility (TSDF) operations, and in any emergency response activities involving hazardous substances. Regular class and lab attendance will be documented. The course includes the study of the historical evolution and the current status of laws and regulations pertaining to the recognition, emergency response, sampling, cleanup, transportation, disposal, and overall management of hazardous wastes. Lab exercises include the use of personal protective equipment (PPE), field analytical instruments, and acceptable safe handling procedures for hazardous substances.

The lab portion of this course includes field exercises that are designed to simulate recognizing and responding to real hazardous materials incidents. Students will not be exposed to hazardous chemicals but students may expect to do strenuous physical simulations wearing chemical suits, respirators, and supplied air breathing systems. If a student is not in adequate physical health to complete these exercises then they must advise the instructors in advance. 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.), that would limit your participation, please contact the Services for Students with Disabilities Office, located in Driftwood 101, at 361-825-5816. If you need disability accommodations in this class, please have the SDO and/or student notify the instructor as soon as possible.

Learning Objectives
This course satisfies the 40-hour off-site employee training requirements of 29 CFR 1910.120 as well as the Resource Conservation and Recovery Act of 1976 (RCRA) and Section 126 of the Superfund Amendments and Reauthorization Act (SARA) which apply to workers at hazardous waste sites. This
initial training covers safe site investigations, the identification of hazardous materials, typical hazards, proper selection of protective equipment, spill containment and clean-up, container selection, and the transport of spill residues and wastes. The student will learn and be able to identify:

1. The purposes of OSHA, USEPA, USCG, and NIOSH and their roles in regulating the environmental, health, and occupational safety considerations of the workplace;
2. Hazardous materials, their hazards, their symptoms of exposure, and appropriate engineering controls and personal protective measures;
3. Approved site characterization procedures and methods to: identify problems that may exist in the workplace; assess risks; and how to mitigate those risks;
4. The hazards that may occur when reactive compounds and mixtures are improperly stored or managed;
5. The essential elements of establishing effective site controls including the establishment of safe work zones and decontamination procedures;
6. How to develop and use site health and safety plans (HASP);
7. How to implement response procedures for site or personnel emergencies or hazardous materials exposures.

Grading

<table>
<thead>
<tr>
<th>Grading Criteria</th>
<th>ESCI 4370 (Undergrad Level)</th>
<th>ESCI 5370 (Grad Level)</th>
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<tbody>
<tr>
<td>Course Assignments &amp; Attendance</td>
<td>50%</td>
<td>45%</td>
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<td>Final Exam</td>
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<td>45%</td>
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<td>Presentation Assignment</td>
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Assignments
At a minimum, each student must complete the FEMA courses ICS 100 and ICS 700. Additional assignments may be given over the period of this course. Graduate Students taking ESCI 5370 must complete a separate assignment, report, and or presentation. The topic must be approved in advance by the instructor.

Attendance
Students seeking HAZWOPER certification for this OSHA mandated training MUST attend all class sessions and participate in the lab sessions which include demonstrations, experiments, and field exercises. Forty-hours of combined classroom and lab attendance are required in order to be issued a certificate of completion meeting the requirements of 29CFR 1910.120. Any students who miss any course hours must attend make-up sessions prior to being awarded a grade or a certificate of completion. The laboratory portion of this course will include a tabletop emergency response management exercise and a simulated spill response in full personal protective equipment. The student should make every effort to complete this short-course with the class. The student must schedule any
required make-up course sessions or exams with the instructor within two months of the scheduled completion of the course.

Examination
A final examination will be given on the last day of the 40-hour course or upon completion of all coursework. A passing grade will be achieved only upon completion of 48-hours of instruction, including lab and field exercises, and a grade of 70% or better on the final exam.

Required Textbooks:

Recommended Free Downloadable Software:
- ALOHA
- CAMEO
- FEMA ICS 100
- FEMA ICS 700
- MARPLOT
- WISER

Overview of Topics Covered
- Regulations Overview
- Site Characterization
- Toxicology
- Hazard Recognition
- Hazard and Safety Analysis
- Hazardous Chemical Awareness
- Radiological Hazards
- Respiratory Protection
- Personal Protective Equipment
- Site Control
- Decontamination
- Medical Surveillance
- Air Monitoring
- Confined Space Entry
- Emergency Procedures
- Material Sampling

Topics & Schedule

**Monday**
Introduction to Program
NIMS ICS: Roles and Responsibilities
  - FEMA ICS 100
  - FEMA ICS 700

“The Emergency Operations Center” (Video)

CHAPTER 1: Hazardous Materials Management System
CHAPTER 2: Health and Safety
CHAPTER 3: Incident Command Systems
CHAPTER 5: Site Management and Control
Hazmat Communications including Definitions and Acronyms
Hazmat Laws, Regulations and Standards
Hazmat Waste Operations and Emergency Response
Assigning Response Roles and Responsibilities
Public Protective Actions
Staging Areas and Hazard Control Zones

**Tuesday**

CHAPTER 6: Identify the Problem
CHAPTER 7: Hazard Assessment and Risk Evaluation
CHAPTER 8: Personal Protective Clothing and Equipment
Exposure and Toxicity Concerns
Medical Surveillance and Monitoring of Field Personnel
Hazard and Risk Evaluation
Material Safety Data Sheets (MSDS) & North American Emergency Response Guidebook
TLV’s and PEL’s
Heat Stress and Hypothermia
Field Observation - Occupancy and Location, Container Shapes, Markings and Color,
Placards and Labels, Shipping Documents, Monitoring Equipment, Senses
Monitoring Instruments and Sampling, “Air Monitoring Instruments” (Video)
Sampling, Chain of Custody, and Hazardous Waste Manifesting
Personal Protective Clothing
Levels of Protection
Respiratory Protection
Chemical and Physical Properties of Hazardous Materials

Overall Site Safety – Using Site Health & Safety Plans (HASP)

*Lab Demonstration and Discussion: Chemical and Physical Properties of Hazardous Materials*

*Field Exercise: PPE & Respirator Use and Care*

**Wednesday**

CHAPTER 10: Implementing Response Objectives
CHAPTER 11: Decontamination
Establishing the EOC
Strategies and Tactics
- Confined Space and Lock Out, Tag Out
- Static Electricity – Bonding and Grounding
- Spills & Leaks - Containment & Control
- Other Special Topics

CHAPTER 9: Information Management and Resource Coordination
Advanced Information Resources – Internet Sites
- WISER
- ALOHA
- CAMEO
- MARPLOT

CHAPTER 12: Terminating the Incident
**Tabletop Exercise: Planning an Emergency Response for a Haz-Mat highway accident**
Incident Debriefing
Post Incident Analysis and “Lessons Learned”
Case Studies of Emergency and Remedial Response Actions
Post Emergency Response
Hazardous Waste Management
Written Exam and Review

**Thursday**
*Demonstration and Discussion: Decon Set-up*
*Demonstration and Discussion: Over-packing a Drum*
*Field Exercise: Half & Full Face Respirator Fit Testing*
*Field Exercise: Cascade Air System*

**Friday**
*Field Exercise: Level A Hazmat Dress-Out*
*Field Exercise: Level A Hazmat Spill Drill (3-4 hours)*
*Field Exercise: Equipment Recovery and Storage*
*Demonstration and Discussion: Spill Response Techniques and Materials*

**Week 2 (One Day)**
8 Hour HAZWOPER Supervisor Course
Management & Leadership Skills
Safety Management Systems
Regulatory Inspections & Investigations
Environmental & Safety Sampling
Graduate Students taking ESCI 5370 must complete a separate assignment, report, and or presentation.