Course Description

Introduction to the basic concepts of industrial hygiene from a technical level. Focuses on the areas typically encompassed by industrial hygiene and highlights the importance of the industrial hygienist in protecting employee safety and health.

Course Summary

A practical understanding of industrial hygiene standards and measurements enforced by the federal Occupational Safety and Health Administration (OSHA), as well as sources of recommended standards and practices are emphasized.

Students are introduced to topics, material, and computations concerning appropriate toxicology and occupational health and safety standards. In addition, airborne contaminants and indoor air quality are examined. Discussion of noise and radiation exposures, as well as ergonomic issues and the effects of temperature extremes are analyzed. The use of proper personal protective equipment is presented and discussed.

Prerequisites

CHM 1030 and MA 1150

Course Textbook


Course Learning Objectives

Upon completion of this course, students should be able to:

1. Explain and discuss the practice of industrial hygiene, and the management of industrial hygiene issues, and standards in the workplace.
2. Identify occupational health hazards that may exist in the workplace.
3. Compare and contrast an array of different approaches for dealing with workplace hazards.
4. Outline the rationale underlying the provisions of established standards.
5. Illustrate how the principles of physics, chemistry, and biological sciences apply to the practice of industrial hygiene.
6. Perform basic calculations related to industrial hygiene.
7. Describe and discuss the major types of ionizing and non-ionizing radiation health hazards along with some methods to prevent tissue damage and injury.
8. Apply ergonomic concepts to the prevention, control, or elimination of workplace hazards.
9. Describe and evaluate some approaches to prevent and control the health impact of hot and cold work environments.
10. Differentiate and evaluate various types and uses for personal protective equipment for worker use.
11. Demonstrate use of a logic diagram to select the appropriate respirator for use in a given situation.
12. Discuss the history and regulatory background of industrial hygiene and related regulations or standards with agencies such as OSHA, MSHA, ANSI, and NIOSH.
Credits

Upon completion of this course, the students will earn three (3) hours of college credit.

Course Structure

1. Unit Summaries: Each unit contains an overview, or summary, of the information to be covered.
2. Unit Learning Objectives: Each unit contains learning objectives that specify the measurable skills and knowledge students should gain upon completion of the unit.
3. Key Terms: Key terms are intended to guide students in their course of study. Students should pay particular attention to key terms as they represent important concepts within the unit material and reading.
4. Reading Assignments: Each unit contains reading assignments from one or more chapters from the textbook.
5. Discussion Boards: Discussion Boards are a part of all CSU term courses. Information and specifications regarding these assignments are provided in the Academic Policies listed in the Course Menu bar.
6. Assessments: This course contains six unit assessments – to be completed at the end of Units I-III and V-VII.
7. Case Study: A scenario based case study will be required in Unit IV of this course. Questions related to the scenario will encompass principles and techniques introduced throughout the course itself. Information and specifications regarding this assignment are provided below.
8. Final Examination (Proctored): All final examinations are supervised by an approved Proctor. Final Examination details are provided in the syllabus below. You are permitted four (4) hours to complete this exam, in the presence of your approved proctor. This is an open book exam. Only course textbooks and a calculator, if necessary, are allowed when taking proctored exams.
9. Ask the Professor: This communication forum provides you with an opportunity to ask your professor general or course content related questions.
10. Student Break Room: This communication forum allows for casual conversation with your classmates.

Case Study

THE SITUATION: You are an Industrial Hygienist for a large New Orleans Hospital, and you evacuated to Baton Rouge after the Katrina disaster. It is 6 weeks after the event and you have been given the responsibility to supervise a team that will return to the hospital, evaluate the situation, and participate in a plan to re-establish basic medical needs for the workers involved in the recovery effort. Your team is composed of the hospital's current Safety Supervisor (programs and training), the Environmental Manager (physical plant, wastes and regulatory issues), and two technicians (versed in IH and environmental sample collection and testing). There are 20-25 additional employees from other areas (professional, technical, and support staff) of the hospital under the direction of the Incident Commander. Everyone on the recovery team will be housed on site in FEMA trailers. Power for all operations is from large FEMA portable emergency generators. Your offices are on the second floor of the building, along with the surgical suites, clinical laboratory, and pharmacy. In your offices, there is a considerable amount of trash and debris scattered about with ample evidence of the public's intrusion of the area after the event. You will find muddy footprints and open cabinets, along with testing supplies and equipment strewn about your team's work space. The surgical suites and clinical laboratory areas are very messy but otherwise in good shape; however, the pharmacy has been trashed and ransacked. The basement and much of the first floor were flooded to a level of about 6 feet. The main administrative offices, emergency room operations, and cafeteria/kitchen were on the first floor. The hospital will not be able to provide its own power for at least 6-8 weeks. Normal communication lines are down. Cell phones are working sporadically, but promises have been made for rapid improvement over the next 10 to 14 days. Most communications in these early days of recovery are face to face.

THE BOSS NEEDS: The Incident Commander (person in-charge of recovery) for this operation is looking to you for guidance on safe entry, safe clean up procedures, appropriate PPE for all recovery workers, and a hazard assessment for the most critical items or operations that can cause acute or chronic health effects, illness, or disease. Remember that you are to respond as the industrial hygienist working for the hospital. It is important to consider the industrial hygiene hazards for the hospital as well as those introduced by the hurricane.

THE QUESTIONS TO BE ANSWERED: You may respond to these questions in any order you choose.

- What recommendations and guidance would you make to the Incident Commander to address his concerns and needs?
- What are the main Industrial Hygiene concerns for your team and the clean-up recovery workers?
• How would you organize your team?
• What tasks would you assign to them?
• What PPE would you require for your team members and the recovery workers - short term and then later in the recovery effort?
• What testing equipment would you require for your team members?
• What hazardous materials might need to be removed from the facility?
• What air monitoring would need to be conducted?
• How would you delegate certain duties to your team members?
• Provide any other pertinent information you feel is important and necessary.

The response for this Case Study must be a minimum of four to five pages (not including the title or bibliography page), and should be double spaced. In addition to the text, you should provide at least three reference sources of information used to support your positions in this Case Study. The Ebsco Database (Business Source Complete) is a very good source for journals related to this topic. Students can access the CSU Online Library resources from the My Library button located in the Course Menu.

CSU requires that students use the APA format in writing course papers. Therefore, the APA rules for formatting, quoting, paraphrasing, citing, and listing of sources are to be followed.

To submit your completed assignment upload it using the "Case Study" link located in Unit IV. Do not e-mail your paper directly to your professor. By uploading your assignment directly into Blackboard, your university record will automatically be updated to indicate you have submitted your paper and it will be provided to your professor for grading.

**APA Guidelines**

CSU requires that students use the APA style for papers and projects. Therefore, the APA rules for formatting, quoting, paraphrasing, citing, and listing of sources are to be followed. A document titled “APA Guidelines Summary” is available for you to download from the APA Guide Link, found in the Learning Resources area of the myCSU Student Portal. It may also be accessed from the Student Resources link on the Course Menu. This document provides links to several internet sites that provide comprehensive information on APA formatting, including examples and sample papers.

**CSU Grading Rubric for Papers/Projects**

The course papers will be graded based on the CSU Grading Rubric for all types of papers. In addition, all papers will be submitted for electronic evaluation to rule out plagiarism. Course projects will contain project specific grading criteria defined in the project directions. To view the rubric, click the Academic Policies link on the Course Menu, or by accessing the CSU Grading Rubric link, found in the Learning Resources area of the myCSU Student Portal.

**Final Examination Guidelines**

Final examinations are to be administered to students by an approved proctor on a date that is mutually convenient. The student is responsible for selecting a qualified proctor that must be approved by the University.

A list of acceptable proctors is provided in the Examination Proctor Policy. To review the complete Examination Proctor Policy including a list of acceptable proctors, proctor responsibilities, proctor approval procedures and the Proctor Agreement Form, go to the myCSU Student Portal from the link below:

[myCSU Student Portal](#)

Proctored Final Exams are taken online. To request your proctored final exam, select the designated links found in the online course. You are permitted four (4) hours to complete this exam, in the presence of your approved proctor. This is an open book exam. Only course textbooks and a calculator, if necessary, are allowed when taking proctored exams.
Communication Forums

These are non-graded discussion forums that allow you to communicate with your professor and other students. Participation in these discussion forums is encouraged, but not required. You can access these forums with the buttons in the Course Menu. Instructions for subscribing/unsubscribing to these forums are provided below.

Click here for instructions on how to subscribe/unsubscribe and post to the Communication Forums.

Ask the Professor

This communication forum provides you with an opportunity to ask your professor general or course content questions. Questions may focus on Blackboard locations of online course components, textbook or course content elaboration, additional guidance on assessment requirements, or general advice from other students.

Questions that are specific in nature, such as inquiries regarding assessment/assignment grades or personal accommodation requests, are NOT to be posted on this forum. If you have questions, comments, or concerns of a non-public nature, please feel free to email your professor. Responses to your post will be addressed or emailed by the professor within 48 hours.

Before posting, please ensure that you have read all relevant course documentation, including the syllabus, assessment/assignment instructions, faculty feedback, and other important information.

Student Break Room

This communication forum allows for casual conversation with your classmates. Communication on this forum should always maintain a standard of appropriateness and respect for your fellow classmates. This forum should NOT be used to share assessment answers.

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion Boards (8 @ 1.25% each)</td>
<td>= 10%</td>
</tr>
<tr>
<td>Unit Assessments (Units I-III and V-VII @ 10% each)</td>
<td>= 60%</td>
</tr>
<tr>
<td>Case Study (Unit IV)</td>
<td>= 15%</td>
</tr>
<tr>
<td>Final Exam (Unit VIII)</td>
<td>= 15%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>= 100%</strong></td>
</tr>
</tbody>
</table>

Course Schedule/Checklist (PLEASE PRINT)

The following pages contain a printable Course Schedule to assist you through this course. By following this schedule, you will be assured that you will complete the course within the time allotted.
By following this schedule, you will be assured that you will complete the course within the time allotted. Please keep this schedule for reference as you progress through your course.

<table>
<thead>
<tr>
<th>Unit I</th>
<th>Introduction to Industrial Hygiene and Toxicology Review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review:</strong></td>
<td>□ Unit Study Guide</td>
</tr>
</tbody>
</table>
| **Read:** | □ Chapter 1: Introduction to Industrial Hygiene  
□ Chapter 2: Toxicology Review |
| **Discuss:** | □ Discussion Board Response: submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
□ Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | □ Assessment by Tuesday, Midnight (Central Time) |

**Notes/Goals:**

<table>
<thead>
<tr>
<th>Unit II</th>
<th>Occupational Health Standards and Airborne Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review:</strong></td>
<td>□ Unit Study Guide</td>
</tr>
</tbody>
</table>
| **Read:** | □ Chapter 3: Occupational Health Standards  
□ Chapter 4: Airborne Hazards |
| **Discuss:** | □ Discussion Board Response: submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
□ Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | □ Assessment by Tuesday, Midnight (Central Time)  
□ Proctor Approval Form |

**Notes/Goals:**

<table>
<thead>
<tr>
<th>Unit III</th>
<th>Sampling for Airborne Contaminants and Indoor Air Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review:</strong></td>
<td>□ Unit Study Guide</td>
</tr>
</tbody>
</table>
| **Read:** | □ Chapter 5: Sampling for Airborne Contaminants  
□ Chapter 6: Indoor Air Quality |
| **Discuss:** | □ Discussion Board Response: submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
□ Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | □ Assessment by Tuesday, Midnight (Central Time) |

**Notes/Goals:**
<table>
<thead>
<tr>
<th>Unit IV</th>
<th>Case Study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review:</strong></td>
<td>☐ Unit Study Guide</td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td>☐ None</td>
</tr>
</tbody>
</table>
| **Discuss:** | ☐ Discussion Board Response: submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
☐ Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | ☐ Case Study by Tuesday, Midnight (Central Time) |

**Notes/Goals:**

<table>
<thead>
<tr>
<th>Unit V</th>
<th>Controlling Airborne Hazards and Occupational Skin Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review:</strong></td>
<td>☐ Unit Study Guide</td>
</tr>
</tbody>
</table>
| **Read:** | ☐ Chapter 7: Controlling Airborne Hazards  
☐ Chapter 8: Occupational Skin Disorders |
| **Discuss:** | ☐ Discussion Board Response: submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
☐ Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | ☐ Assessment by Tuesday, Midnight (Central Time) |

**Notes/Goals:**

<table>
<thead>
<tr>
<th>Unit VI</th>
<th>Occupational Noise Exposure and Ionizing/Nonionizing Radiation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review:</strong></td>
<td>☐ Unit Study Guide</td>
</tr>
</tbody>
</table>
| **Read:** | ☐ Chapter 9: Occupational Noise Exposure  
☐ Chapter 10: Ionizing and Nonionizing Radiation |
| **Discuss:** | ☐ Discussion Board Response: submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
☐ Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | ☐ Assessment by Tuesday, Midnight (Central Time) |

**Notes/Goals:**
### Unit VII

**Ergonomics, Temperature Extremes, Selection and Use of PPE**

#### Review:
- [ ] Unit Study Guide

#### Read:
- [ ] **Chapter 11:** Ergonomics and Temperature Extremes
- [ ] **Chapter 12:** Selection and Use of Personal Protective Equipment

#### Discuss:
- [ ] **Discussion Board Response:** submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- [ ] **Discussion Board Comment:** Comment on another student's Discussion Board response by Tuesday, Midnight (Central Time)

#### Submit:
- [ ] **Assessment** by Tuesday, Midnight (Central Time)
- [ ] **Request to take Final Exam**

### Notes/Goals:

---

### Unit VIII

**Course Summary and Final Exam**

#### Review:
- [ ] Unit Study Guide

#### Read:
- [ ] None

#### Discuss:
- [ ] **Discussion Board Response:** submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- [ ] **Discussion Board Comment:** Comment on another student's Discussion Board response by Tuesday, Midnight (Central Time)

#### Submit:
- [ ] **Final Exam** by Tuesday, Midnight (Central Time)

### Notes/Goals: