Course Syllabus
CH6800 - Safety in Chemical Laboratory
College of Science and Arts
Fall 2015

Instructor Information

Instructor: Rudy Luck, Associate Professor
Office Location: 701b Chemical Sciences Building
Telephone: Office – (906)487-7137 (Cell- (906) 370- 7405)
E-mail: rluck@mtu.edu
Office Hours: M 1:00pm – 2:00pm

Course Identification

Course Number: CH6800-L01
Course Name: Safety in Chemical Laboratory
Course Location: 100 EERC 7
Class Times: M 4:05pm – 4:55pm
Prerequisites: A desire to learn about safety

Course Description/Overview

Course is about OSHA rules and regulations and how Michigan Tech is creating a culture of safety. Will examine Michigan Tech’s Chemical Hygiene Plan, understand responsibilities as graduate students, learn how to create Standard Operating Protocols, and how to be safer in a chemical lab environment.

Course Learning Objectives

The course will feature the legal basis for safety laws in addition to the surprisingly rational idea of just doing work safely. What are the possible sources of dangers? How can these dangers be minimized. No action in life is without danger but being armed with some additional perspectives on the relevant issues should produce the desired culture of safety. We will explore the University’s Chemical Hygiene Plan which will be available on the course website for you to download. Students taking this course should be able to learn essential safety protocols for working in industry or academia in any capacity. Specific objectives include:

- The Hazard Communication Written Program
- Accidents- how these occur.
- Legal responsibilities and rights.
- The list of hazardous chemicals used by your unit/department.
• Locations and situations that may occur within your unit or department where hazardous chemical exposure can occur.
• Appropriate PPE and engineering controls for chemicals used in your department/unit.
• How to construct SOPs.
• Conduct a safety inspection
• Where to find and how to read Safety Data Sheets (SDS) for chemicals in use in your department or unit.
• Safe work practices and emergency procedures
• Instruction on proper labeling of secondary chemical containers.
• Recognition of hazard pictograms (symbols) used to represent specific hazards.
• You will be certified to conduct research at Tech in compliance with the rules and regulations in the university’s Chemical Hygiene Plan.

Course Resources

Course Website(s)
• Canvas <http://www.courses.mtu.edu>
• Personal Website <http://www.chemistry.mtu.edu/~rluck/>

Required Course Text
• Chemical Hygiene Plan for Michigan Tech available on the course website

Course Fees
None.

Course Supplies
You need an iClicker device. This will be registered during the first lecture. Get one from the bookstore

Grading Scheme

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Grade points/credit</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% &amp; above</td>
<td>4.00</td>
<td>Excellent</td>
</tr>
<tr>
<td>AB</td>
<td>85% – 89%</td>
<td>3.50</td>
<td>Very good</td>
</tr>
<tr>
<td>B</td>
<td>80% – 84%</td>
<td>3.00</td>
<td>Good</td>
</tr>
<tr>
<td>BC</td>
<td>75% – 79%</td>
<td>2.50</td>
<td>Above average</td>
</tr>
<tr>
<td>C</td>
<td>70% – 74%</td>
<td>2.00</td>
<td>Average</td>
</tr>
<tr>
<td>CD</td>
<td>65% – 69%</td>
<td>1.50</td>
<td>Below average</td>
</tr>
<tr>
<td>D</td>
<td>50% - 64%</td>
<td>1.00</td>
<td>Inferior</td>
</tr>
<tr>
<td>F</td>
<td>49% and below</td>
<td>0.00</td>
<td>Failure</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete; given only when a student is unable to complete a segment of the course because of circumstances beyond the student’s control.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
X Conditional, with no grade points per credit; given only when the student is at fault in failing to complete a minor segment of a course, but in the judgment of the instructor does not need to repeat the course. It must be made up by the close of the next semester or the grade becomes a failure (F). A (X) grade is computed into the grade point average as a (F) grade.

**Grading Policy**

Grades will be based on the following:

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Final Exam</td>
<td>40</td>
</tr>
<tr>
<td>One Term Exam</td>
<td>30</td>
</tr>
<tr>
<td>Class attendance/participation</td>
<td>15</td>
</tr>
<tr>
<td>Safety Inspection Assignment</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Late Assignments or attendance problems**

There will be quizzes every lecture which will count towards the class attendance/participation. Be sure and attend each lecture.

**Course Policies**

You must answer the iClicker questions individually. These are not meant to be a group effort.

**Collaboration/Plagiarism Rules**

There is to be no collaboration on graded iClicker questions in the classrooms and in the exams. The term exam (not the final) will require the use of a laptop which can be connected to the internet.

*Cell phones, Blackberries, iPods, PDAs, or any other electronic devices can be used in the classroom. I know that people love hearing these ring out in a lecture format and everyone likes to hear your conversation. Speak as loudly as possible and we will stop the lecture so that you can communicate since this is very important for you. This is obviously sarcasm.*

Please make sure to bring the iClicker with you to class.

**University Policies**

Student work products (exams, essays, projects, etc.) may be used for purposes of university, program, or course assessment. All work used for assessment purposes will not include any individual student identification.

Michigan Tech has standard policies on academic misconduct and complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. For more information about reasonable accommodation for or equal access to education or services at Michigan Tech, please call the Dean of Students Office, at (906) 487-2212 or go to http://www.mtu.edu/ctl/instructional-resources/syllabus/syllabus_policies.html
Course Schedule (TENTATIVE OUTLINE)

Week 1
M 8/31  Course introduction and description of the NRC’s report.

Week 2
HOLIDAY-no lecture obviously.

Week 3
M 9/14  Wrap up NRC’s report and Green Chemistry

Week 4
M 9/21  Industrial accidents

Week 5
M 9/28  Federal and state laws and the various codes

Week 6
M 10/5  University’s Chemical Hygiene Plan

Week 7
M 10/12 SOP’s

Week 8
M 10/19  First Term Exam

Week 9
M 10/26  Transporting chemicals and spill kits

Week 10
M 11/2  Biosafety and radiation

Week 11
M 11/9  Lab and safety equipment

Week 12
M 11/16  Housekeeping and disposal of wastes

Week 13
M 11/30  Laboratory design and PPE’s

Week 14
M 12/7  Compressed gases and pumps

Finals Week
TDB