Fall 9-1-2021

CHMY 485.01: Laboratory Safety

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Instructor Information
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Lectures: Fridays 11:00-11:50 am Room: Chem 204
Office Hours: by arrangement

Course Description
CHMY 485 introduces the types of hazards found in laboratories, methods for controlling laboratory hazards, legal responsibilities and sources of information about these issues. The course is focused on preparing students to safely teach middle school and high school science classes.

Learning Outcomes

- Indicate that the most important factor for maintaining a safe school laboratory is behavior control.
- Explain various approaches to promoting and enforcing safe behavior in science classrooms.
- Describe when and how to use personal protection equipment (goggles, gloves, etc).
- Explain Material Safety Data Sheets and practice this knowledge by writing a lesson plan to teach about MSDSs.
- Explain the categories of chemical hazards and routes of exposure.
- Use of chemical incompatibility tables.
- Describe the methods of ordering, storing, disposing and keeping track of chemicals.
- Demonstrate laboratory safety equipment such as eyewash stations, chemical showers, fume hoods, fire extinguishers, including when and how to use the equipment, routine maintenance.
- Explain safe handling of human body fluids (Universal Precautions).
- Explain safe handling of microorganisms.
- Explain safe and humane care and handling of living organisms.
- Safe handling of preserved specimens.
- Explain safe handling of compressed gas cylinders, projectile generators, sharps, hot and cold materials and loud noises.
- Explain electrical hazards managing those hazards in a classroom.
- Describe how to design/modify demonstrations and student experiments to manage potentially hazardous situations.
- Explain how to find and evaluate information about chemical, physical and biological hazards.
- Practice use of dry chemical, carbon dioxide and water fire extinguishers on flammable liquids fires.
- Prepare a laboratory safety notebook with lecture notes and additional resources to be used when they start teaching.

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Course Materials
There is no text for CHMY 485. Course materials will be handed out in class.

Assessment
Grades will be based on class attendance (40 pts) , the SDS quiz (10 pts), the worksheet on safe handling of chemicals (25 pts) and safety notebook based on notes from class (25 pts), for a total of 100 possible pts. Letter grades will be determined from the point total using 90.0%, 80.0%, 70.0% and 60.0% as cutoffs for A, B, C and D, respectively.

1. Class Attendance: (40 pts) There are 13 classes plus the final exam meeting time. Everyone starts with 40 attendance points. One absence during the semester will be excused if you show me notes you have copied from another student who attended the class. Further absences will be penalized at 10 pts per absence.

2. SDS Quiz: (10 pts) Short quiz on safety data sheets and interpretation of information found in SDS's.

3. Take-Home Worksheet on Safe Handling of Chemicals: (25 pts) The worksheet will cover procedures for safe handling, storage and disposal of chemicals, and will include some extended problem solving.

4. Safety Notebook: (25 pts) Safety notebook consists of handouts and the notes that you take during class.

Approximate Course Schedule*

Week	Date	Lecture Content
Week 1	08/21	Introduction,
Week 2	08/28	role of supervisor/classroom teacher, legal & ethical issues
Week 3	09/4	controlling behavior in the classroom
Week 4	09/11	safe handling of chemicals-MSDSs
Week 5	09/18	MSDS quiz safe handling of chemicals
Week 6	9/25	safe handling of chemicals
Week 7	10/2	laboratory safety equipment
Week 8	10/9	Fire Extinguisher Practice (behind Physical Plant)*
Week 9	10/16	worksheet on safe handling of chemicals; personal protection; equipment
Week 10	10/23	physical safety issues
Week 11	10/30	safe handling of biological materials
Week 12	11/6	Emergency response
Week 13	11/13	handling accidents; additional resources and information
Finals Week	11/19-11/24	Scheduled final exam notebook due

* The schedule is subject to rearrangement based on availability of Missoula firefighters for fire extinguisher practice.