CHM 295/595: Course Syllabus - Fall 2016

General Information

CHM 295/595 (1 or 2 units) - Laboratory Safety and Supervision

Note: CHM 595 assumes working knowledge of organic chemistry on quizzes and final and will require a special project

Time: Mondays 5:30-8 pm for ~7weeks in room 502 of bld. 36.

If registered For 2 Units: Add work with or as teaching assistant in instructional chemistry laboratory 3-6 hrs/week, TA Meetings 1-2 hour/week, training 8/26, and homework (workbook)

Instructor: Malia Davis Office #: 36-424 Phone: 523-1329

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Web Site: http://jan.ucc.nau.edu/~jkn/Labs.html & Bb Learn zero credit course.

Course Prerequisites: Completion of, or concurrent enrollment in CHM151 and CHM151L for CHM 295 and CHM 238 and 238L for CHM595.

Course Description:

(1 unit) An overview of laboratory safety, hazard communication (8/29), , chemical hazards, and exposure limits fire safety (9/12), hazardous waste and chemical storage, (9/19), emergency response and safety equipment (9/26), mock emergency (10/3), other safety procedures, along with toxicology and government regulations (10/10), final exam (10/17),

(2 unit course) The additional unit offers practical experience in laboratory supervision with a focus on developing safety, supervisory, and instructional/core skills as a teaching assistant for an instructional lab.

Course Objectives:

1. Mastery of laboratory safety concepts.
2. Develop familiarity with safety references and information.
3. To present departmental and university procedures with respect to chemical management, hazardous waste management, emergency procedures and other safety concerns.
4. Meet OSHA requirements for training of laboratory employees.
5. Develop supervisory, instructional, and interpersonal skills in the context of an instructional laboratory.

Course Organization

One Unit Course (Laboratory Safety):

1. Minicourse format meeting every Monday evening for 2-3 hours the first 7-8 weeks of the semester. The final exam will be given on October 17th .
2. Short weekly quizzes will be given starting on 9/12 over assigned reading, lecture material, and homework.
3. Conduct a safety audit or evaluation of an assigned laboratory & follow up on safety concerns. A one page report covering the safety evaluation and follow up on correcting problems (when possible) is required. Departmental forms will be used as guidelines for the safety evaluation. Alternate projects such as writing a chemical hygiene plan, presenting a talk to the class on a special safety related topic, etc. could be done with the approval of the instructor.
4. Participate in Mock Emergency Training.
5. Complete homework including the Safety Exercise, Lab Performance Contract, MSDS Cert (print it with name & date), and 3-5 other homework assignments.
6. Complete a CPR course or have current CPR card if possible for extra credit (may have training).

Two Unit Course (TA Training) - add the following:

1. Practical experience in an instructional laboratory, to manage safety aspects and interact with students in a functioning undergraduate lab meeting a minimum of 2-6 hours per week for 15 weeks. Attendance in the assigned laboratory section selected from CHM 151L, 152L, 235L, or upper division lab is required.
2. Read experiments and prepare ahead of time for experiments that will be done in your assigned lab section. Complete any work assigned to the students. CHM 151L and 152L teaching assistants are required to complete the work assigned in 151L or 152L handbooks (deadlines listed in handbooks). No late work will be accepted after **November 21rd**. All teaching assistants must outline prelab lectures, do all prelab and postlab including loncapa work, and submit them before at least 1-2 weeks before students start the experiment or by due dates listed. If prelab quizzes are given these must also be submitted with the answers. All TAs will also present a prelab lecture and take the lab final for their lab and a general TA final for part of their grade. Students who are helping in a lab they've never taken at NAU are strongly encouraged to actually do each experiment. New TAs must shadow an experienced TA before they do

their lab.

Upper division lab teaching assistants will be required to submit a revised Teaching Assistant Handbook. The handbook will include notes on each experiment (prelab lecture outlines), copies of the experiments used, a list of chemicals used and solution preparation (include amounts needed for a section and storage location), SOPs, equipment needed and special instructions for use, and copies and answers to all prelab questions and quizzes. Use Word for the handbook and all prelab lectures and quizzes written. A hard copy of this work and electronic copy is due by 11/21.

3. Work with the instructor, lab manager, and other teaching assistants to provide safe and positive learning experience for the students in your lab section. Interact with students "one-on-one" in every lab period you help with.
4. Attend teaching assistant meetings for the lab you're assigned:
   CHM151L – Mondays at 3:15 pm in 36-315.
   CHM152L – Mondays at 1:30 pm in 36-415.
   CHM235L – Mondays at 4pm in 17-221.
   All other TAs arrange a weekly meeting with the instructors for your labs.

Textbook and required materials:

1. The NAU Chemistry Department's Safety Program/Manual provided by instructor.
2. "Safety in the Academic Chemistry Laboratories" by the ACS provided on loan by instructor or on Bb Learn.
3. Safety Reading Packet provided by instructor.
4. Recommended Optional Materials/References
   a. "Safety in Working with Chemicals", Grocen and Turk
   b. "Dangerous Properties of Industrial Materials", Sax
   c. "CRC Handbook of Chemical Safety"

Evaluation Methods and Deadlines:

First Unit:

Assignments: Safety Audit worth 100 points. Extra points (25) for having a current CPR card or the completion a CPR course given by the university or local fire department (must earn or have current CPR card) and for completion of fire extinguisher training.

Quizzes: 200 points. A quiz will be given at the end of nearly every lecture except for the first and last lecture. These quizzes will be cumulative and will cover any material covered previously in the course or assigned reading.

Homework: 150 points

Final Examination: Will be worth 200 points and is given on the last day of class.

Additional for Second Unit:

Participation in Instructional Laboratory: 150 points. Required to attend all class meetings. Will assist teaching assistant and instructor in the laboratory with a focus on safety, communication skills, and becoming a useful teaching assistant. 20 points will be lost for every lab meeting missed, 5 points off for being late. Sign in and out in log book in 212.

TA Assignments and Exams: 700 points. 10 points off per week for work not completed on time. Previous assignments must be complete before submitting current ones. Also take lab & stockroom final and give lab lecture that is graded. A special project is required for CHM595.

Involvement in Staff Meetings and assigned lab section(s): 150 points. 20 points off for each TA meeting or TA/TAA assignment missed, 5 points off for being late.

Late or Corrected Assignments: -20%/week Redone Work: Up to half credit on missed questions or work.

Letter Grade Assignment:

Grade	Percent
A	90-100
B	80-89
C	70-79
D	60-69
F	<60

For Students Taking CHM595 for second time.

Safety Training:

1. Conduct detailed Safety Audit and Inventory of laboratory assigned by instructor.
2. Participate in Mock Emergency Training as Victim or Observer.
3. Take Final Exam.
4. Other review assignments as assigned.

TA Training (2 units):

Complete TA training for different lab or do special project as assigned by instructor.