

## **CHEM 597 - Laboratory Safety - Three semester hours**

Classes will be from 6 – 10:00 PM

### **COURSE DESCRIPTION**

This course will provide you an in-depth knowledge and detailed outline of the fundamentals of lab safety and effective laboratory safety programs.

The course will cover the identification and management of common laboratory hazards, and will also address the regulatory requirements. The topics included are chemical and biological hazards, emergency preparedness, electrical safety, fire safety, handling glassware, hazardous material storage, hazardous waste management, regulatory aspects, OSHA / EPA/ NIH and CDC safety standards, personal protective equipment, ventilation requirements, and how to design your own safety program.

Various topics discussed in this class will be reinforced with small group problem based learning activities (PBL), interactive sessions, mock exercises and visual modules.

### **REQUIRED Materials (S)**

Lectures and other supplementary materials (Journal articles, case study material and assignments and quizzes) will be emailed to the students before the class.

### **RECOMMENDED TEXTBOOK (S)/READING (S)**

Recommended for additional reading

OSHA regulations

CDC- BMBL Biosafety in Microbiological and Biomedical Laboratories

EPA regulations

### **EXAMS**

There will be two equally weighted exams given, one during the course and the second one at the end of the course. The students will be expected to be available and prepared for the exams at the specified times. Missing an exam will result in a 0 score for that exam unless due to illness as documented by a doctor's note and the student notifies the instructor of the illness before the exam (e-mail, phone message, etc.). Make-up exams will not be given ordinarily. The exams will contain a mix of multiple choice questions, long (explanation) questions, short (formulas and definitions) questions and graphical/diagrammatic questions.

### **COURSE GRADING**

Grading: Your final grade is based on the performance in 2 exams (20% each), Problem Based

Learning Activity (PBL)(30%) and Assignments/Drills/ activities (30%) Grading will be based on a standard percentage scale: 100-90 = A; 89-80 = B; 79-70 = C; 69-60 = D; 59-below = F. Dishonest scholarship will earn an automatic zero (0) and initiate prosecution to the fullest extent. Incomplete grades may be given only if the student has a current average 70% and is precluded from completion of the course by a documented illness or family crisis.

**COURSE SCHEDULE – Classes will be from 6-10:00 PM**

1. ABC's of Safety, Safety Regulations (OSHA, EPA, NIH, CDC)
2. Chemical safety, Handling Chemical Reagents
3. Labeling and storage of Hazardous materials, Storage of Chemicals -Problem Based Learning Activity 1
4. Waste management of Hazardous materials, Disposal of Chemicals
5. Personal Protective equipments and it's proper usage, Safety Equipments - Eye and Face Protection - Problem Based Learning Activity 2
6. Important aspects in facility deign, ventilation requirement

FIRST TEST

7. Biological safety, How to handle biological specimen
3. Electrical safety and Fire safety
9. Risk assessment and Planning for Emergencies, reporting Accidents and evaluation
10. Safety Program Planning
11. Standard operating procedures & chemical hygiene plan in Secondary School Science Labs (Problem Based Learning Activity 3)

SECOND TEST

14. Final Project/ presentations

ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND SUBJECT TO CHANGE

Problem Based Learning Activity (PBL) will provide an opportunity to the students to interact and work as a team to apply their knowledge of safety programs to practical scenarios (mock activities, as various safety professionals).

**Special Needs and Accommodations**

Please advise the instructor of any special problems or needs at the beginning of the semester.

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library, Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

[StudentDisabilityServices@tamu-commerce.edu](mailto:StudentDisabilityServices@tamu-commerce.edu)