



TEXAS A&M UNIVERSITY
COMMERCE

CHEM 502.01W: LABORATORY SAFETY Fall I 2022

Instructor: Maya Nair, PhD, RBP

Office: Virtual office

Office Hours: Virtual office at D2L or by appointment.

Contact Information : Email - Maya.nair@tamuc.edu

Phone – 469 426 6291

COURSE DESCRIPTION

This course will provide you an in-depth knowledge and detailed outline of the fundamentals of an effective laboratory safety program. 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 control, handling glassware, hazardous material storage, hazardous waste management. Safety guidelines and regulations by Federal and state agencies and safety organizations. OSHA / EPA/ NIH and CDC standards and guidelines. This course will also address recommendations of 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) hands on techniques, interactive sessions, mock exercises and visual modules.

Student Learning Outcomes (Should be measurable; observable; use action verbs)

After completing this course, the students will be able to

1. Identify fundamentals of an effective laboratory safety program.
2. Identify and manage common laboratory hazards
3. Design standard operating procedure (SOP).
4. Develop safety promoting tools.
5. Conduct risk assessment
6. Design their own lab safety program.

REQUIRED Materials (S)

Lectures and other supplementary materials (Journal articles, case study material, and assignment) will be shared with the students before the session.

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 one multiple choice exam during the middle of the course and the second one is an open note, take home assignment to design your own lab safety program.

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.

COURSE GRADING

Grading: Your final grade is based on the performance in 2 exams, Problem Based Learning Activity (PBLs) and Assignments/Drills/ activities. 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 online using zoom and the following topics will be discussed during the course. Assignments and additional activities are incorporated to review the essential elements of a laboratory safety program. A detailed outline of the class will be presented to the students on the first day of class.

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
4. Waste management of hazardous materials, disposal of Chemicals.
5. Risk assessment and personal protective equipment and its proper usage.
6. Standard operating procedures & chemical hygiene plan.
7. Important aspects in facility design, ventilation requirement.
8. Biological safety, handling biological specimen
9. Electrical safety and fire safety
10. Risk assessment and Planning for Emergencies
11. Accidents, reporting and evaluation.
12. Chemical hygiene Safety in Secondary School Science Labs
13. Design your own lab safety program.

ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND SUBJECT TO CHANGE

Problem Based Learning Activity (PBL) -

Problem-Based Learning (PBL) is a teaching method in which complex real-world problems are used as the vehicle to promote student learning of concepts and principles as opposed to direct presentation of facts and concepts. Students will be provided scenarios and case studies prior to the activity. PBL will provide an opportunity to the students to interact and work as a team to apply their knowledge about safety programs to practical scenarios (mock activities as various safety professionals).

TECHNOLOGY REQUIREMENTS

LMS – myLeo Online – D2L Brightspace

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements.

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here: <https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

The instructor's communication response time and feedback on assessments are stated clearly.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Your class policies for Attendance/Lateness, Late Work, Missed Exams and Quizzes and Extra Credit

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: [Netiquette](#)

<http://www.albion.com/netiquette/corerules.html>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

ADA Statement

Students with Disabilities

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

Velma K. Waters Library - Room 162

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

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun.

Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.