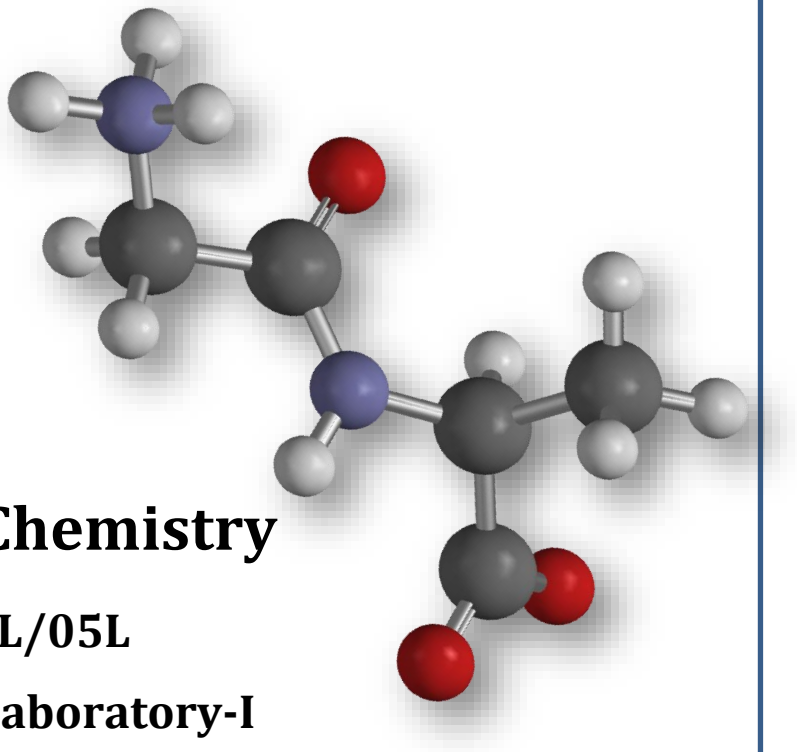
TEXAS A&M UNIVERSITY
COMMERCE



Department of Chemistry

CHEM2123-04L/05L

Organic Chemistry Laboratory-I

Course Syllabus

Fall-2020

"I consider nature a vast chemical laboratory in which all kinds of composition and decompositions are formed"

Antoine Lavoisier

1. Instructor Information

Name	:	Dr. Mufrettin Murat Sari	Office	:	STC344
E-Mail	:	Mufrettin.Sari@tamuc.edu	Phone	:	903-886-8765
Class Meeting	:	Wed/Thu 2:00-5:50pm	Location	:	STC308
Office Hours	:	By appointment	Term	:	Fall, 2020
Communication	:	Via University e-mail	Response Time	:	Max. 24 h.

2. Course Information

Organic Chemistry Laboratory-I, CHEM2123-04L/05L.

Organic Chemistry-I, CHEM2123 laboratory sections meet:

Section 04L: Wednesday 2:00 –5:50 pm, STC308

Section 05L: Thursday 2:00 –5:50 pm, STC308

Course Materials:

- Custom Lab Manual: CHEM 2123 - Laboratory Experiments - Organic Chemistry I: Custom book, by Pavia ISBN: 978-1-337-90735-4 (Available only in the bookstore)
- A pair of safety goggles (You need to purchase it)
- For the lab drawer, a combination lock. You need to purchase it and share the combination with your lab partner and the instructor only!. You must bring it to your first laboratory meeting.
- Appropriate lab attire (long pants, no open-toed shoes, long hair tied back, no sleeveless shirts),
- Calculator,
- Lab coat (optional).
- Safety goggles, long pants, and closed toed shoes are required to be worn during all laboratory experiments.

3. Course Description

My fundamental point of view in teaching is that learning chemistry and related courses basically requires two wings, one is a well-prepared lecture and the other one is an efficient and well-organized laboratory. These two must always be together in a harmonious way with each other so that the student can grasp the concepts. The laboratory experiments are also inseparable parts of many chemistry courses. I try to build up an environment in laboratories where students can discover their experimental abilities by making basic chemical synthesis and analysis. Here, the main aim is to arouse the feeling of being a scientist. They will be a part of developing and growing science in the future. Making them creative and passionate depends on this. Chemistry is an experimental science. Therefore, chemical knowledge has resulted from experimental observations and studies made by thousands of scientists. In Organic Chemistry Laboratory, CHEM2123, students will examine, test, and establish techniques for organic chemistry laboratory, including preparation, setup, and running reactions and the characterization of the properties of representative organic compounds.

Safety Quiz:

All students will be required to take safety training and to pass the safety quiz. The quiz will be held on online and technical details will be explained in the first lab. The safety quiz needs to be completed before the students can participate in lab activities.

4. Coronavirus, COVID19, Protection Measures

A&M-Commerce requires the use of face-coverings in all instructional and research classrooms/laboratories. Exceptions may be made by faculty where warranted. Faculty have management over their classrooms/laboratories. Students not using face-coverings can be required to leave classrooms/laboratories. Repetitive refusal to comply can be reported to the Office of Students' Rights and Responsibilities as a violation of the Student Code of Conduct.

Students should not attend class when ill or after exposure to anyone with a communicable illness. Communicate such instances directly with your instructor. Faculty will work to support the student getting access to missed content or completing missed assignments.

5. Student Learning Outcomes

a. General Learning Outcomes

By the end of the semester, I expect for my students to have realized some objectives such as;

Critical Thinking;

- to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information,

- to critically analyze a chemical problem and deduce a solution to the problem utilizing step-wise processes

Communication;

- to include effective development, interpretation and expression of ideas through written, oral, and visual communication;

- to reach clear and purposeful communication skills and make appropriate use of evidence, data and technology as applicable

Empirical and Quantitative Skills:

- to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions,

- to analyze, evaluate, or solve problems when given a set of circumstances or data,

- to understand and utilize algebraic/mathematical functions and empirical principles and processes to solve quantitative problems since the chemistry requires good algebra skills.

Teamwork:

- to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal,

b. Organic Chemistry Laboratory-I Specific Student Learning Outcomes, Skills, and Core Objectives:

Upon completion of the organic chemistry lab, I intend for my students to have realized some objectives below. All students must be able;

- to learn basic synthetic organic chemistry techniques, such as how to set up reactions, how to monitor the progress of a reaction, how to calculate the amount of starting materials needed, how to calculate percent yields, and how to properly clean glassware at the end of an experiment.

- to understand basic techniques for the isolation and purification of organic molecules, such as distillation, recrystallization, chromatography (TLC and column), and extraction.

- to learn how to characterize organic compounds using techniques and instrumentation such as melting point, boiling point, retention factor, ^{1}H-NMR, ^{13}C-NMR, IR, and UV/Vis spectroscopy.

- to learn the safety requirements and methods needed to work in an organic chemistry laboratory.

- to learn how to safely handle, utilize and dispose of chemicals.

- to learn how to document laboratory experiments, how to maintain a scientific notebook.

- to know the importance of organic chemistry and its relationship to various other disciplines such as biochemistry and medicinal chemistry and our daily lives.

6. Course Requirements, Minimal Skills Needed

a. Instructional Methods

Class Procedure: You will be required to work in groups of 2-3 students. Groups made of less than 3 students or more than 4 students will not be allowed. I may change the groups periodically. You are expected to work together as a team to answer the questions posed in the lesson. Thus, you are highly encouraged and expected to discuss, with your group members, the lesson, and the answers to the questions posed. The instructor for the course is not present to answer the questions for you. Rather, the instructor is present to guide you in your learning efforts.

b. Pointers to Succeed in Organic Chemistry Lab I:

The efficiency and pace of the lab depends on the procedures below;

- It is essential that you read these rules carefully and understand what is expected.

- Every student will write his/her individual pre and post lab reports with their own words and comments. The observations and data sections of the report must be the original notes taken during the course of the experiment. No typed or photocopied reports will be accepted.

- It is required to read the background information of the experiment and its procedure before coming to class. Performing lab experiment without pre-lab report is not allowed. Pre-lab reports should be submitted before the instructor's lecture.

- Labs cannot be done without safety glasses and gloves.

- Late arrival (more than 20 minutes) will result in forfeit of the grade for that lab.

- There will be 9 labs assigned with written lab reports (pre-lab, data and post-lab). A minimum of 8 labs must be completed (with report) to pass the class. Only initialed data sheet will be accepted.

- Up to 25 points will be subtracted from your post lab report for non-participation in lab activities.

- You have one week to submit Data and Post Lab /Lab Report after experiment. You are required to submit Post Lab Report in a timely manner. For example, Wednesday lab report is due on next week Wednesday.

- There will be absolutely no make-ups for laboratory experiments. If you miss a laboratory experiment that will be your dropped laboratory report. If you miss more than one laboratory experiment, you will be assigned a grade of zero for that assignment. It is the student's responsibility to inform the instructor of his/her absence before class. See the following website for more details about course withdrawal deadlines:

http://www.tamuc.edu/admissions/registrar/academicCalendars/.

c. Lab Cleanliness:

You will be expected to maintain a clean and orderly lab. At the end of every experiment, your bench space and hood space must be cleaned. Any equipment utilized during the experiment must be cleaned as well (balances, rotovaps, etc.). You should ensure that sinks and floors are also clean. If the lab space and equipment that you utilized during the experiment is left dirty and unorganized, you will be penalized 20% on your lab report associated with that experiment.

7. Grading/Evaluation

The grade for this course will be derived as follows: The lab report with the lowest score will be dropped. The average of the grades for the rest of the laboratories will constitute the laboratory grade. Your laboratory grade will be based on 8 of your best experimental write-ups (lab reports) out of 9 (80%) and spectroscopy problems (20%).

Lab reports (prelab and postlab) : 80%

Spectroscopy problems : 20%

Late work will not be accepted: If you miss a laboratory session, for whatever reason, you can drop one laboratory session's pre-lab and post-lab. If you miss two laboratory sessions or more, you will receive a grade of zero for the second missed laboratory session and any subsequent laboratory session that you miss. 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. If you miss 3 or more laboratory sessions and do not have a passing grade, you may be administratively dropped from the course.

8. Course and University Specific Procedures/Policies

a. 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.

b. 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: https://www.britannica.com/topic/netiquette

c. TAMUC Attendance

One of the most important factors that directly affect learning efficiency is attendance and active

participation. They are important as much as exam grades for me. I check attendance of students, follow their active participation level along lecture, and will take into consideration their performance during the final comprehensive evaluation. I believe that lecturers play a crucial role at this point, as their knowledge skills, teaching ability, enthusiasm, and friendliness allow them to increase student participation in the classroom. All students are encouraged to attend labs on a regular basis. Because experience has shown that lab grades are directly proportional to attendance. Therefore, attendance is expected. Lab participation is a significant measure of performance. Not attending lab may not only cause you to become behind in the understanding of experiment material but it may also negatively affect your grade.

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

d. 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

e. Students with Disabilities-- ADA Statement

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 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

f. 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.

g. 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.

9. Technology Requirements

a. LMS

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

b. 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.

c. Communication and Support

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

d. 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

e. Interaction with Instructor Statement

If the instructor needs to contact an individual student, it will be via the student's Texas A&M – Commerce email account.

10. Course Outline/Calendar - Hybrid Lab

Due to the current COVID-19 issue, we will perform the lab as follows. You will be divided into groups containing three students, where the first group members will be at the laboratory in person each week with the group members rotating each week. I will announce the group list before the first week.

When the first group member meets to do the experiment, the other two will do the same experiment online. For instance, the 1st member will do Experiment 1 in the lab face-to-face while the other two members will do the same experiment online. After the experiment, the student who attended the face-to-face lab will share real experimental data and results immediately with the others attended

online. The second week the 2nd group member meets face-to-face to do Experiment 2, and 1st and 3rd member will do online. The 3rd member will meet to do Experiment 3, and 1st and 2nd member will do the same experiment online third week.

Tentative Laboratory Calendar for CHEM2123

(The following lab number and name is based on custom lab manual from campus book store)

Week	Date for Section 04L and 05L	Experiment
1	Aug 26, 27	Check in equipment, watch lab safety video & Quiz. Laboratory write-up instructions.
2	Sept 02, 03	Experiment 1. Solubility: Read all of Experiment 1. Write the report up as described in Experiment 1, answer questions 1-5 in the report **(1st face-to-face, 2nd and 3rd online)**
3	Sep 09, 10	Experiment 2. Crystallization: Read all of Experiment 2. Write the report up as described in the Experiment 2, answer questions 1-3 in the report **(2nd face-to-face, 1st and 3rd online)**
4	Sep 16, 17	Experiment 3. Extraction: Read all of Experiment 3. Write the report up as described in Experiment 3, answer question 1 in the report **(3rd face-to-face, 1st and 2nd online)**
5	Sep 23, 24	Experiment 15. Chromatography: Read Experiment 15 background information. Read the essay 'Chemistry of Vision' Answer questions 1-4 in the report **(1st face-to-face, 2nd and 3rd online)**
6	Sep 30, Oct 01	Experiment 20A. Nucleophilic Substitution Reactions: Read All of the Experiment 20 **(2nd face-to-face, 1st and 3rd online)**
7	Oct 07, 08	Experiment 20B & 20C. Nucleophilic Substitution Reactions: Read All of the Experiment 20B & 20C. Answer questions 1-9 in the report **(3rd face-to-face, 1st and 2nd online)**
8	Oct 14, 15	No Labs. Chapter 12. Lecture over Infrared Spectroscopy and Mass Spectrometry **(fully online)**.
9	Oct 21, 22	Set up for the Experiment 27A. Chapter 13. Lecture over NMR Spectroscopy **(fully online)**.
10	Oct 28, 29	Experiment 27A. Chiral Reduction of Ethyl Acetoacetate: Read All of the Experiment 27A. Answer questions 1-3 in your report. Read the essay 'Green Chemistry' **(1st face-to-face, 2nd and 3rd online)**

11	Nov 04, 05	Experiment 47. Benzocaine: 'Read All of the Experiment 47, answer questions 1-5 in your report. Read the essay 'Local Anesthetics **(2nd face-to-face, 1st and 3rd online)**
12	Nov 11, 12	Experiment 33A. Triphenylmethanol: 'Read All of the Experiment 33A, answer questions 1-5 in your report **(3rd face-to-face, 1st and 2nd online)**
13	Nov 18, 19	Spectroscopy Exam (online), Check Out
14	Nov 25, 26	No Labs
15	Dec 02, 03	No Labs