

**CHEM 2123 ORGANIC CHEMISTRY I LABORATORY**

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**Lab Teaching Assistant:**  
Office:  
Email:  
Phone:

**Course Time Zone:** Central Time USA

**Online Office Hours:** I will schedule 1.5 hours once a week during which you can ask questions live via the video conferencing service YouSeeU. For Summer 2020, we will have our Online Office Hours Friday Mornings 8:30-10:00 am (Central Time).

**COURSE INFORMATION**

**Text/ Manual and other required material:**

**Custom Lab Manual:** CHEM 2123 - Lab Experiments - Organic Chemistry I: a custom lab manual will be available at the campus bookstore or via download from the publisher. The link will be shared with the class when available.

**Spartan Software - online purchase Student Version - special price \$10** - Get the Spartan Software required for lab experiments at [https://urldefense.proofpoint.com/v2/url?u=https-3A\\_store.wavefun.com\\_product-5Fp\\_spstudent-2Dcovid-2D19.htm&d=DwIFaQ&c=oqyuZuih6y kib6aKiBq22\\_bich4AVfYGoLertJN0bEc&r=C2jMLEDI1fetbOO3V7JJfFgznBAz382DFfBI8ISxjHc&m=qyERfvVja2lBqlwL2lSwIj69XlBZl1lap74Cn2ArsPqE&s=HhthccTxUW406W2gj\\_G\\_3lGabgbxUOe-gTDR9QidnQk&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A_store.wavefun.com_product-5Fp_spstudent-2Dcovid-2D19.htm&d=DwIFaQ&c=oqyuZuih6y kib6aKiBq22_bich4AVfYGoLertJN0bEc&r=C2jMLEDI1fetbOO3V7JJfFgznBAz382DFfBI8ISxjHc&m=qyERfvVja2lBqlwL2lSwIj69XlBZl1lap74Cn2ArsPqE&s=HhthccTxUW406W2gj_G_3lGabgbxUOe-gTDR9QidnQk&e=)

**Available for download after purchase. STUDENT USE ONLY!**  
**Product Code:** SPSTUDENT-COVID-19

**Course description:** Introduction of techniques for organic chemistry laboratory, including preparation, setup, and running reactions and the characterization of the properties of representative organic compounds.

**Student Learning Outcomes/Course Objectives:**

By the end of the semester I intend for my students to have realized a number of objectives.

- 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.
- Learn basic techniques for the isolation and purification of organic molecules, such as distillation, recrystallization, chromatography (TLC and column), and extraction.
- Learn how to characterize organic compounds using techniques and instrumentation such as melting point, boiling point, retention factor, <sup>1</sup>H-NMR, <sup>13</sup>C-NMR, IR, and UV/Vis spectroscopy.
- Learn the safety requirements and methods needed to work in an organic chemistry laboratory.
- Learn how to safely handle, utilize and dispose of chemicals.
- Learn how to document laboratory experiments, how to maintain a scientific notebook.

- Know the importance of organic chemistry and its relationship to various other disciplines such as biochemistry and medicinal chemistry and our daily lives.
- Learn how to use computational chemistry to evaluate the properties and reactions of organic molecules.

### GRADING

Your laboratory grade will be based on your experimental write-ups (lab reports, 80%) and spectroscopy problems (20%).

Lab reports (prelab and postlab):	80%
<u>Spectroscopy problems:</u>	<u>20%</u>
	100%

**You are required to submit lab reports in a timely manner. You will incur a 10% penalty for every day that your lab report is late; thus, if a lab report is 10 days late, you will receive a zero for that report.** The last drop date for the course is *June 22, 2020*.

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  $\geq 70\%$  and is precluded from completion of the course by a documented illness or family crisis.

The details of the course structure are given below. Any changes will be communicated via email and announcements on MyLeo Online. Your TAMUC email account will be used at all times, and it will be your responsibility to check it regularly (at least once every 24 hours)

### COURSE PROCEDURES/POLICIES

**Laboratory Notebooks:** You must write down what you observe and measure during the time of the experiment. Compose the laboratory report in sufficient detail to allow someone else to repeat the experiment exactly. The observations section of the report must be the original notes taken during the course of the experiment.

**Each laboratory report will consist of the following sections:**

- Prelab Section – 40 points
  - Title – 2 points
    1. Date of the experiment, student's name, course/section, instructor's name, TA's name, the number of the experiment and its title.
  - Objective – 3 points
    1. The purpose of the experiment, method/skills.
  - Physical Constants/Reagent Data – 10 points
    1. Make a table to clearly list the chemical and physical properties of all the solvents and chemicals you will use. The properties include but are not limited to melting point, boiling point, color, phase, solubility, flammability, toxicity.
  - Stoichiometry/Theory – 5 points
    1. (Equation - 2 points; how much of each reactant should be used and what is the limiting reagent – 1 point.
    2. What is the theoretical yield by calculation – 2 points.
  - Safety – 5 points
    1. Read the special instruction part carefully so that you will not be injured.
    2. How to deal with the dangerous chemicals and operations should be listed clearly.

- Procedure – 15 points.
  1. Itemize the procedure as an outline, do not copy the text book directly.
  2. You are encouraged to explain the key steps after the particular procedures.
- Postlab Section – **60 points** (MUST be completed by the beginning of the next laboratory period and submitted along with the pre lab report)
  - Modifications to procedure – 5 points
    1. What modification were made?
    2. Why were these modifications made?
  - Observations – 15 points
    1. List the phenomenon you have observed such as bubbles formed, the color of the mixture changed from colorless to rose, two layers were formed from one phase, green crystals formed and so on.
  - Results – 20 points.
    1. What's the physical property of your product? (melting point, color, phase)
    2. How much product was obtained? (You should show the original data and the calculation process; three significant digits after the decimal are required.)
    3. Calculate your actual yield
  - Discussion – 20 points
    1. Explain the phenomenon you have observed . Explain the results in terms of the purpose of the experiment.
    2. Compare the expected results with the actual results (compare the theoretical and the actual yield.)
    3. Explain how the purity and identity of the compound was assessed.
    4. Interpret the IR and H-NMR spectra.
    5. Answer the assigned problems according to the syllabus.

***Tentative Lab Schedule for CHEM 2123 Summer I 2020***

<b><i>Day</i></b>	<b><i>Name of the Experiment</i></b>
<i>June 1</i>	<i>Purchase license to Spartan and start using the software to learn the basics of how to use it: Spartan computational software overview.</i>
<i>June 2</i>	<i>Computational Experiment #1 using Spartan: Conformations of molecules. Polarity of molecules.</i>
<i>June 3</i>	<i>Computational Experiment #2 using Spartan. Geometric stereoisomers, stability of structural isomers.</i>
<i>June 4</i>	<i>Computational Experiment #3 using Spartan. Energy of transition states, stability of reaction intermediates. Stereoisomers</i>
<i>June 5</i>	<i>No Lab</i>
<i>June 8</i>	<i>No Lab</i>
<i>June 9</i>	<i>Experiment 1. Solubility: Read all of Experiment 1. Write the report up as described in Experiment 1, answer questions 1-5 in the report</i>
<i>June 10</i>	<i>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</i>
<i>June 11</i>	<i>No Lab. Chapter 12. Watch the video lectures over Infrared Spectroscopy and UV Spectroscopy and complete the IR and UV/Vis assignment.</i>

June 12	No Lab
June 15	No Lab. Chapter 12. Watch the video lectures over Mass Spectrometry and complete the Mass Spec assignment.
June 16	No Lab. Chapter 13. Watch the video lectures over NMR Spectroscopy and complete the NMR assignment.
June 17	No Lab. Chapter 13. Watch the video lectures over NMR Spectroscopy and complete the NMR assignment.
June 18	Experiment 3. Extraction: Read all of Experiment 3. Write the report up as described in Experiment 3, answer question 1 in the report.
June 19	No Lab
June 22	Chromatography Experiment.
June 23	No Lab
June 24	Literature searching using scientific databases
June 25	Computational Experiment #4 and literature searching using scientific databases
June 26	No lab
June 29	Experiment 47. Read the essay 'Local Anesthetics'. Benzocaine: 'Read All of the Experiment 47, answer questions 1-5 in your report.
June 30	Experiment 33A. Triphenylmethanol: 'Read All of the Experiment 33A, answer questions 1-5 in your report.
July 1	No Lab
July 2	No Lab

## TECHNOLOGY REQUIREMENTS

### 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](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](mailto: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 best way to communicate with the instructor is via e-mail: [stephen.starnes@tamuc.edu](mailto:stephen.starnes@tamuc.edu) or stop by the instructor's office (Science 339) for clarification of course material and expectations.

## **COURSE AND UNIVERSITY PROCEDURES/POLICIES**

### **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: <https://www.britannica.com/topic/netiquette>

### **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>

### **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](mailto: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.