



College of Arts & Sciences

Organic Chemistry II Laboratory - CHEM 2125

Instructor:	Dr. G. Robert Shelton	Lab Hours:	Monday or Tuesday 11:00
Office:	S&T 311H	Class Location:	STEC 327
Office Hours:	TBA & By appointment	Phone:	210.784.2246
Email:	Bob.Shelton@tamusa.edu		

Course Materials

Lab Manual:	Various PDFs made available on Blackboard
Lab Report:	Worksheets made available on Blackboard
Materials:	Carbonless copy laboratory notebook, approved safety goggles, and lab coat

Course context as outlined by the American Chemical Society (ACS)

The laboratory portion of the organic chemistry experience should demonstrate how organic chemical knowledge is acquired through experimentation. Laboratory skills and techniques are important, as are the skills of asking questions that can be formulated into chemical experiments, and then answering them by the analysis of experimental data. Working in teams can be useful in the laboratory learning environment, and mirrors the team-oriented problem solving that occurs in professional laboratories.

Practical topics as suggested by the ACS

- developing a feel for the logic of organic experimental procedures: the logic of glassware design, selecting the optimum equipment for a particular reaction or operation, why particular solvents and reaction conditions are used for a specific transformation planning and carrying out a variety of organic reactions, including safety considerations
- keeping a laboratory notebook as a record of what is done and when it was completed
- monitoring the process of a reaction
- isolation and purification of products
- spectroscopic analysis of starting materials and products; deducing structures by interpretation of modern
- spectroscopic and computational data, and its use to answer the formulated hypothesis
- analysis of experimental data using statistical analysis

- the value and limitations of computational methods

Grading

Your final grade will be assigned based on your performance in the following areas: (1)

- 3 Laboratory notebooks/reports (100 points each)** **300 points**
 - Prelaboratory quizzes (open notebook)** **50 points**
 - Spectroscopy presentation** **100 points**
 - Assessment of safe laboratory practices** **50 points**
- **Total Points Possible: 500 points**

The letter grades will be assigned based on the following distribution:

Letter Grade	A	B	C	D	F
% of Total Points	100 - 90	89 - 80	79 - 70	69 - 60	< 60

Tentative Schedule^{*±}

Week [§]	Day(s)	Description
		Laboratory
1	Aug. 27, 28	Lab check-in: Review of safety, syllabus, and lab notebook procedure.
2	Sept. 2, 3	No labs this week due to the Labor Day holiday.
3	Sept. 9, 10	Spectroscopy Project: IR, MS, & NMR review
4	Sept. 16, 17	Wittig Reaction Part 1: Review of literature, prepare for experiment
5	Sept. 23, 24	Wittig Reaction Part 2: Experiment: stilbenes from benzaldehyde
6	Sept. 30, Oct 1	Wittig Reaction Part 3: Characterization of the stilbenes
7	Oct. 7, 9	Grignard Reaction Part 1: Synthesis of 4-methyl-3-heptanol
8	Oct. 14, 15	Grignard Reaction Part 2: Day two of synthesis
9	Oct. 21, 22	Grignard Reaction Part 3: Oxidation with sodium hypochlorite
10	Oct. 28, 29	Grignard Reaction Part 4: Characterization of 4-methyl-3-heptanol & 4-methylheptan-3-one
11	Nov. 4,5	Furoin Condensation Part 1: Preparation of furfural from corn cobs

12	Nov. 11, 12	Furoin Condensation Part 2: Thiamine-catalyzed benzoin condensation of furfural
13	Nov. 18, 19	Spectroscopy Project – Student presentations
14	Nov. 25, 26	Spectroscopy Project – Student presentations
15	Dec. 2, 3	Lab check-out.

Laboratory

Laboratory Safety Rules: The rules will be discussed and reviewed on the first day of lab. Please read them for yourself, sign, date and then turn in the first day of labs.

Lab Safety: Proper dress is essential for safety in the laboratory. It is important to protect your skin from contact with chemicals. Therefore, no bare midriffs or exposed feet will be permitted in the lab. Wear sturdy clothing made of natural fabrics that covers your body. Wear closed-toe shoes, preferably made of leather, to prevent absorbing spilled chemicals against your skin.

ANY PERSON FOUND WITHOUT EYE PROTECTION IN THE ORGANIC LABORATORIES WILL BE DISMISSED FROM LAB FOR THE REMAINDER OF THAT LABORATORY PERIOD AND WILL RECEIVE A GRADE OF "0" FOR THAT DAY'S EXPERIMENT. PERSISTENT VIOLATORS WILL BE DROPPED FROM THE COURSE WITH A GRADE OF "F".

All persons are responsible for their own actions and the results of those actions in the laboratory. By enrolling in this course and participating in the laboratory activities you accept liability for all harm, injury, or property damage resulting from your actions, and agree that the University, its faculty, or employees shall not be held liable for the results of your actions.

Lab Reports: A single PDF file of your lab report will be uploaded to Blackboard. If lab reports are not turned in by the time Dr. Shelton starts grading the reports you will be penalized 10% per day the lab report is late.

Lab Notebooks: All laboratory records and write-ups must be in ink in a bound laboratory notebook. Leave the first two pages blank as a place for the Table of Contents and Grades for each experiment. Begin the write-up for each new experiment on a new page. The outline for the notebook record and typed report follows.

I. Heading This includes the title of the experiment, your name, lab section, date, and collaborators (if any).

II. Description of the Experiment Give the purpose, important reactions, and the answers to the Prelab questions.

III. Experimental Procedure This is very important. It must be detailed enough that any knowledgeable person including you can carry out the experiment without reference to other sources, including the Lab Text. The use of flow charts for procedures or purification is very helpful in saving space and in having a good knowledge of what you are going to do before you come to lab. Preparing places or tables for data that needs to be recorded during the experiments will help prevent forgetting something. Your prelab preparation is the major factor in determining the success and completion of your experiments. It is also a major factor in having a SAFE LAB.

IV. Observations and Results This is the information obtained during the lab while you are carrying out the experiment. Record your observations during the experiment, and data such as melting points, boiling points, weights of products (use all decimal places provided by the balance), weight of reactants (the amount you used, not the amount stated in the procedure), deviations from the original procedure, color changes, time of reaction and distillation temperature. It is the record of the work you have done. It should be well organized and easy to understand for anyone who reads your notebook. If you make a mistake, you should make a single line across the entry and write your correction next to it.

V. Conclusions: This last section of the report is done after the lab. It includes a summary of your conclusions and calculations, if any. Comment on how (or if) the purpose of the experiment was achieved based on your results. Include improvements to the experiment you performed.

As you can see, most of the work in this course is done outside the lab in **preparing** for the lab and is done **before** you go to lab. The better job you do in preparing for the lab, the more successful the experiments will be, less time will be wasted in lab, and the more you will learn

Student responsibilities

Communication. The best way to contact me is through email, Bob.Shelton@tamusa.edu. All correspondence between professors and students must occur via University email accounts. You must have Jaguar email account ready and working. If it is not working, contact the help desk at sahelp@tamusa.tamus.edu or at 210-784-4357. Students are expected to access Blackboard for updates on the course, announcements and other course materials. All students are strongly encourage to come to office hours or make appointments at other times to discuss course material and answer questions.

Attendance Policy. All students are expected to attend lecture and actively engage in class discussion, activities and online assignments. Attendance will be monitor and can be used to make decisions on cases

of borderline grades. If you are absent, you are responsible for the material covered and are expected to get notes, announcements and any other material from another student in the class. Absences will be excused if due to illness (medical excuse), death of a close family member, religious holiday (please inform instructor), official university activity or cancellation of classes, military duties, pregnancy & related conditions and participation in legal proceedings. Only **one** laboratory will be excused for the above reasons. Excessive absences (more than 3) and tardiness will not be tolerated. Accumulation of more than three unexcused absences will result in a one letter lecture grade decrease.

BE PROMPT. A point from your “lab practices” or experiment grade will be deducted for every minute you are late. Pre-lab lecture and lab attendance will be recorded at the beginning of each meeting. Lab notebooks must be signed upon completion of the lab. Reports for missed labs will not be accepted.

If you have an unexcused absence of a multiple-day experiment, partial credit will be awarded for your work (up to 50% for 2-day experiments or 67% for 3-day experiments)

Conduct and Behavior. As an instructor my goal is to create a safe and engaging learning environment. Class disruptions are unacceptable, asking questions to clarify material during class does not qualify as a disruption and is encourage. If you are disrupting the class you will be ask to leave for the day. Technology in the classroom may be a great a resource but it can also hinder the learning process. Therefore, students are not allow to wear ear buds and headphones and/or use cellphones during class. All cellphones must be on vibrate or turned off for the entirety of the class/lab period. In case of an emergency call, leave the room before answering the call. Texting during class is absolutely prohibited. The use of laptops, tablets or other devices for non-class related activities is not allowed.

Electronic Devices during Exams. All electronic devices must be completely stored during exams and quizzes. Academic misconduct and attempts to cheat during the exam will be pursued according to Texas A&M-San Antonio code of conduct policy. You are discouraged from leaving the room during an exam. If you need to use the restroom ask and leave all electronic devices with the instructor.

Aggressive Behavior. The academic environment is meant for discussing ideas in a respectful manner. Tolerance, empathy, respect and courtesy help us create a safe environment. Abusive and aggressive behavior will result in contacting the University Police Department and immediate removal of the student from the classroom.

Visitors. Only students enrolled in the course are allowed in the laboratory. No visitors are allowed!

IMPORTANT. Each student receives this information during the first lecture. It is your responsibility to read this material and be familiar with the course content, procedures, and grading.

Academic Dishonesty As a member in an academic community, students at Texas A&M University- San Antonio are expected to exhibit a high level of honesty and integrity in their pursuit of higher education, be mature, be self-directed and be able to manage their own affairs. Student who are unwilling to abide by these basic expectations will find themselves facing academic and/or disciplinary sanctions. Student are expected to share in the responsibility and authority with faculty and staff to challenge and make known acts that violate the Texas A&M University- San Antonio Code of Conduct.

Texas A&M University- San Antonio faculty has the discretion to impose grade penalties as deemed necessary. Faculty members are required to report such serious breaches of academic honesty to their chair, their dean and the Office of Student Rights and Responsibilities. In cases of academic misconduct, students may be subject not only to grade sanctions in courses but to disciplinary action. Grade sanctions may be imposed only by faculty members, but suspension or expulsion may be imposed only by the Vice President for Student Affairs.

According to the Student Code of Conduct, the following are violations of Academic misconduct: Cheating, Plagiarism, Multiple Submissions, Collusion, Lying, and Bribery.

For more information, please refer to the Texas A&M University- San Antonio Handbook under Academic Policies: Violations of Academic Conduct.

Veterans and active duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots' Casa in person room 202, or to contact the *Office of Military Affairs* with any questions at military@tamusa.edu or (210)784-1397