

Organic Chemistry II Laboratory (3220.001)

Instructor Contact

Name: Dr. Sreekar Babu. Marpu

Pronouns: He, Him, His

Office Location: CHEM 371

Phone Number: 940-565-4850

Lab Lecture: Monday 1.00 to 2.50 pm; RM CHEM 106; Office hours: M – 3.00 to 3.45 pm

(Attendance is highly recommended)

Email: sreekarbabu.marpu@unt.edu

Note: Please take the time to read the entire syllabus document, course policies are described in this document clearly.

Laboratory Coordinator - Dr. Charles Browning (charles.browning@unt.edu)

Teaching Assistants: Responsible for conducting the labs, grading, and monitoring safety guidelines in the laboratory. First point of contact for any student questions/concerns.

Section Number	Day/Time	TA Name	Contact Information	RM
501 (18)	T/W/R 8.00 am to 10.50 am	Karen Reyes	karenreyes@my.unt.edu	241
502 (19)	T/W/R 8.00 am to 10.50 am	Syed Majid Farvid	SyedMajidFarvid@my.unt.edu	243
503 (19)	T/W/R 1.00 pm to 3.50 pm	Matt Tiemann	matthewtiemann@my.unt.edu	241
504 (20)	T/W/R 1.00 pm to 3.50 pm	Sheikh Islam	SheikhMohamIslam@my.unt.edu	243
505 (11)	T/W/R 4.00 pm to 6.50 pm	Rajitha Perera	rajithaperera@my.unt.edu	241
506 (canceled)				

Communication Expectations: Any questions, first reach out to the TA. TA's are in charge of the laboratory section and needs to be contacted for any question or concern related to the labs. The students can expect a response from the TA in less than 24 hours during the weekdays. The students are expected to reach out to TAs well in advance for reporting an absence from the labs or for arranging a late submission of reports/assignments/quizzes. Everyone is welcome to reach out to the instructor if the TA is unresponsive or the issue is resolved with the TA.

Important Note: Please mention the course number (3220) and laboratory section number (5xx) in the subject line of the email. Do not expect a quick response from the instructor or the TA if this information is missing.

Welcome to UNT!

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT's full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

Course Description

1 credit - No lab lecture; 3 hours laboratory.

This course is designed to introduce students to some well-known and popular organic synthesis reactions. Organic techniques practiced during the 3210 course will help while performing these organic reactions in the laboratory. The experiments will focus on synthesis, characterization, and purification aspects. Selective Organic Synthesis reactions include – Oxidation, Grignard synthesis, Diels-Alder Reaction, Friedel-Crafts Acylation, Electrophilic Aromatic Substitution Reactions, Saponification, Diazonium coupling reaction, and structure assignment based on FTIR and NMR spectral analysis.

Prerequisite(s): "C" or better in CHEM 3210.

Core Requisite(s): concurrently enrolled in CHEM 2380 or completed prior with a "C" or better

The course covers organic I laboratory experiments. The syllabus is designed to provide hands-on laboratory experience with selective organic synthesis techniques and reactions incongruent with the ongoing CHEM 2380 course. The course will involve 6 in-person laboratory experiments, covering all the topics mentioned above. The main objective of the course is to cement the knowledge and practical understanding of theoretical techniques discussed and taught in various chapters of the ongoing CHEM 2370 course. The laboratory experiment sequence is designed to overlap with 2380 teaching content. The experiments are planned and implemented on a microscale considering lab duration and safety concerns.

Course Structure

The laboratory part of the course is fully face-to-face which includes a few homework assignments. The course contains 6 weekly modules made of 6 experiments. A prep day is included for every experiment that allows students to get ready for experimenting in the lab. The prep day contains a prelab quiz and some additional materials that are useful for understanding the concepts of the experiment and getting fully ready for experimenting in the lab. Students are required to finish all the assigned activities during the prep day before going to the lab. The syllabus includes 6 laboratory experiments, 6 prelab activity quizzes, and 2 quizzes. A makeup assignment will be offered at the end of the course depending on the grades of the complete class. See the detailed breakdown of points in the syllabus section.

For safety and effective hands-on training, depending on the number of students in a section, the section will be divided into two groups (**Group A and Group B**) and each group will meet on different days of the week covering the same syllabus. ***The TA will divide the lab section into two groups before the first experiment.*** The students are required to work with the laboratory section TA in the laboratory, and strictly follow instructions to ensure the personal safety and safety of everyone in the lab. Students are required to understand the chemistry concepts of each experiment, get prepared for the experiment, finish online activities, prepare required prelabs, perform the experiment in the lab, and submit the lab reports. If you have any questions or unsure about anything, **DO NOT HESITATE TO ASK!!!** Very important that you are aware of everything listed in the syllabus document. We are looking forward to sharing our knowledge and experience to facilitate a unique and the best laboratory teaching experience for every student enrolled in the 3220 course. I know that you will bring experience and insight into lab activities, the student's feedback is highly recommended. We are truly looking forward to this course this semester!

Weekly Laboratory Work

Part 1: Prelab Preparation: Know your experiment for the week, read the course material, and understand the experiment. Very important! to understand the underlying chemistry concepts of the experiment. Finish all the activities, to get fully prepared for the experiment. Submit the prelab online and print a copy of the prelab to carry to the laboratory. The prelab should contain the Objective, Reference Table and Experimental Procedure. A sample of prelab is available on Canvas. Please check the "LAB REPORT" help documents (Week # 1 Module) for additional information. Reach out to your TA if you have any questions, **submission of prelab is mandatory for every experiment.**

Part 2: Laboratory Work: Attend the lab, make sure you have submitted the prelab, and finished other assigned activities before going to the lab. Carry a copy of the prelab, and perform the experiment following the procedure from the prelab. Follow safety and disposal instructions, and reach out to your TA in the lab. Record observations, and data/results in your notebook. Any regular

notebook can be used. Make sure you have - an acceptable dress code, fully protected shoes, goggles (as per UNT policies), and prelab when you do the lab.

Part 3: Submission of Lab Report: Finalize the lab report (add observations, data/results, conclusions, and postlab questions to the prelab), and submit it following the due dates. Ask your TA if you have questions.

NOTE 1: Excused Absences – A student’s absence if fits within UNT’s excused absence list, the student is required to submit the lab report by collecting the observations and data from a colleague in the same section. For the second excused absence, a student must submit a DOS note to be excused.

Unexcused Absences - A student’s absence DOES NOT fit within UNT’s excused absence list, the student is required to submit the lab report by collecting the observations and data from a colleague in the same section for partial credit. For the first unexcused absence, a student can get a maximum of 14 points and for the second one, not more than 10 points without a DOS note. With a DOS note, an unexcused absence can be treated as an excused absence.

Late Report Submission – Late submissions (prelab quizzes, quizzes, lab reports) are not entertained, late submission by 1 or 2 days for the first time is OK but not repeatedly. Repeated late submission will result in a penalty of up to 10 points.

Prelab Documentation and Submission – A prelab document is mandatory, students will not be allowed into the labs without prelab document preparation and submission. Non-submission of a prelab document can result in a penalty of up to 5 points.

Reach out to your TA if due dates are not clear from the syllabus. **In the lab report, students are responsible only for Postlab Questions, No Prelab Questions only prelab quizzes are available.**

NOTE 2: TA’s will use plagiarism or copy check software, DO NOT COPY, check the “Academic Integrity” policy carefully. A sample of prelab and full lab reports are available in the weekly 1 module on Canvas. During the first week of the semester, the section TA will post a zoom recording explaining in detail the weekly activities, syllabus, and other important items. Please watch the recording and reach out to your TA for any additional questions.

3220.001 platform is only for the instructor to reach out to the entire class. Do not upload any report(s) or quizzes or any other document on the 3220.001 platform. Each section (3220.5XX) will contain the exactly same information as the 3220.001 platforms. Your TA will create submission sections for reports and prelabs.

How to get through the first week of labs

Steps	Actions
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1	Check your enrollment, confirm your lab section, lab time, and room number.
2	Check syllabus document, and understand guidelines and rules, know your TA (name and contact info) – check 3220.5xx course on Canvas and watch for announcements from your TA and the instructor. Know course guidelines, grading scheme, and required work from your end for finishing the course successfully.
3	Know your group (group A or B), your week#1 module start date, and items to finish in week#1 module.
4	Preparing for first in-person lab – finish all prep week assignments (safety quiz, safety agreement, prelab quiz, prelab), gather goggles, and make sure to adhere to the dress code rules, as recommended. Make sure the safety agreement, safety quiz, prelab quiz, and prelab are submitted before going to the lab.
5	First in-person lab – Arrive at least 10 minutes early, and be prepared (dress code, goggles, <i>prelab</i>).
6	Record observations, data, and results in the lab. Compile these data into the prelab and submit the lab report on/before the due date.

Course Prerequisites or Other Restrictions

Please check the course requirements at https://registrar.unt.edu/sites/default/files/feeds/registrar_course (Links to an external site.) or reach out to chem-advising@unt.edu for additional information.

Must have had or be concurrently registered in chem 2380. Must also be enrolled in any chem 3220.5xx lab section. The lab lecture component of this course includes an in-person lecture. For enrollment questions, please reach out to the department (chem-advising@unt.edu) or the UNT registrar's office.

Course Objectives

Upon successful completion of this course, students will be able to

1. Identify different equipment, and special glassware commonly used in the organic chemistry laboratory and handle them safely and effectively.
2. Demonstrate the ability to work safely in the organic laboratory - bench and hood spaces.
3. Review and follow safe laboratory practices in an organic lab setting. Includes safe disposal and handling of different organic chemicals.
4. Apply selective theoretical concepts covered in CHEM 2380 or equivalent organic course in a laboratory setting.

5. Operate at least five organic synthesis reactions, oxidation, Diels-Alder, Grignard synthesis, Electrophilic Aromatic Substitution, Friedel-Crafts Acylation, Aldol Condensation, Saponification, Diazonium coupling, and Aspirin synthesis in an organic lab setting.
6. Apply melting point, recrystallization, thin-layer chromatography, distillation, and extraction techniques practiced during 3210 labs for finishing the organic synthesis reactions.
7. Handle an organic synthesis reaction in the organic lab setting following a written experimental procedure. In the laboratory, able to work individually or within a team to complete the experiment, and collect and analyze the data.
8. Create a standard and a legitimate scientific lab report using data generated in the organic lab setting.
9. Predict and apply fundamental organic chemistry laboratory skills and techniques for advanced courses in chemistry and other branches of life sciences.
10. Adapt good laboratory practices to all compliance items (laboratory work and lab reports).

Note: Some of the named reactions mentioned above will not be covered in the labs during summer, however, we recommend students review the materials that are available on Canvas for their information.

Materials

Recommended Reading: "Macroscale and Microscale Organic Experiments," 6th or 7th Edition by Kenneth L. Williamson and Katherine M. Masters.

Any format of the textbook is acceptable for the course. **The textbook is recommended as an additional source of information only, "NOT REQUIRED".**

All the information required to perform the experiments in the labs is available on Canvas. Any additional information can be obtained from open online resources. For details related to organic chemistry mechanisms, refer to CHEM 2380 course material as needed.

A lab notebook is required for in-person labs to record data, observations, and results. Any regular notebook will work.

Lab Reports: Submission of a lab report is required for any laboratory experiment, quizzes and makeup assignments do not require a lab report. Homework assignments do not require a lab report. Please refer to the Week#1 module on Canvas for the sample lab report. Again, any questions or concerns do not hesitate to reach out to your section TA.

Lab Recitation (Lab Lecture) and Materials

The lab lecture is in person and attendance is NOT MANDATORY because all materials that will be covered during the lecture are available on Canvas. Each weekly module contains Prelab quizzes, powerpoint presentation of the experiment, an experimental

procedure handout, and a demonstration of the experimental video. Please use information from these different sources as needed to finish the experiment and lab report successfully. The video demonstrations will provide information for setting up the experiment, usage of the glassware, chemicals/materials, safety disposal protocols, and other items in the laboratory. **Some of these demonstration videos are from a previous semester, please ignore any discrepancies.**

Important Note: The zoom lecture recordings and YouTube demo videos are from previous semesters, so please kindly disregard the references to the previous semester's information (date, experiment number, name of the TA). Reach out to the instructor or the TA if you have any questions. Some of the materials (PowerPoint and word documents) can have previous semester references or previous semester headings, please ignore them. The content is verified by the instructor, laboratory coordinator, and the TA for accuracy.

Important Note: For this semester, no bonus points are included in the syllabus, the instructor will decide on bonus questions/points depending on the progress of the class.

Teaching Philosophy

The course covers organic I laboratory experiments. The syllabus is designed to provide hands-on laboratory experience with selective organic synthesis techniques and reactions incongruent with the ongoing CHEM 2380 course. The main objective of the course is to cement the knowledge and practical understanding of theoretical techniques discussed and taught in various chapters of the CHEM 2380 course. The laboratory experiment sequence is designed to overlap with 2380 teaching content. Understanding the concepts of CHEM 2380 teachings is very important for getting the best from the 3220 labs.

Course Technology & Skills

Minimum Technology Requirements

Provide a list of the minimum technology requirements for students, such as:

- Computer
- Reliable internet access
- Speakers
- Microphone
- Plug-ins
- Microsoft Office Suite
- [Canvas Technical Requirements](https://clear.unt.edu/supported-technologies/canvas/requirements) (<https://clear.unt.edu/supported-technologies/canvas/requirements>)

Computer Skills & Digital Literacy

Provide a list of course-specific technical skills learners must have to succeed in the course, such as:

- Using Canvas
- Using email with attachments
- Downloading and installing software
- Using spreadsheet programs
- Using presentation and graphics programs

Technical Assistance

Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technical issues.

UIT Help Desk: UIT Student Help Desk site (<http://www.unt.edu/helpdesk/index.htm>)

Email: helpdesk@unt.edu

Phone: 940-565-2324

In-Person: Sage Hall, Room 130

Walk-In Availability: 8am-9pm

Telephone Availability:

- Sunday: noon-midnight
- Monday-Thursday: 8am-midnight
- Friday: 8am-8pm
- Saturday: 9am-5pm

Laptop Checkout: 8am-7pm

For additional support, visit Canvas Technical Help (<https://community.canvaslms.com/docs/DOC-10554-4212710328>)

Rules of Engagement

Rules of engagement refer to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:

- While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language based on race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law will not be tolerated.
- Treat your instructor and classmates with respect in any communication online or face-to-face, even when their opinion differs from your own.
- Ask for and use the correct name and pronouns for your instructor and classmates.
- Speak from personal experiences. Use “I” statements to share thoughts and feelings. Try not to speak on behalf of groups or other individuals experiences.
- Use your critical thinking skills to challenge other people’s ideas, instead of attacking individuals.
- Avoid using all caps while communicating digitally. This may be interpreted as “YELLING!”
- Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
- Avoid using “text-talk” unless explicitly permitted by your instructor.
- Proofread and fact-check your sources.
- Keep in mind that online posts can be permanent, so think first before you type.
- Be cautious when using humor or sarcasm as the tone is sometimes lost in an email or discussion post and your message might be taken seriously or sound offensive.
- Be careful with personal information (both yours and others).
- Do not send confidential information via e-mail
- Any profanity in the lab reports will not be excused – will result in zero and removal from the course. Any disruptive student behavior or harassment towards the instructor or the TA, or the laboratory manager will be reported to the DOS. Check Code of Student Conduct for acceptable student behavior.

See these [Engagement Guidelines \(https://clear.unt.edu/online-communication-tips\)](https://clear.unt.edu/online-communication-tips) for more information.

<i>Assignment</i>	<i>Points Possible</i>	
<i>2 Quizzes. Quiz # 1: Safety quiz mandatory. Quiz # 2 – based on experiments covered in the syllabus</i>	<i>40 points</i>	
<i>6 Lab Reports</i>	<i>120 points</i>	
<i>6 Prelab activity quizzes</i>	<i>120 points</i>	

<i>Assignment</i>	<i>Points Possible</i>	
<i>Unkown Assignment</i>	<i>20 points</i>	
<i>TA Assessment</i>	<i>10 points</i>	
<i>Total Points Possible</i>	<i>310 points</i>	

*Bonus points and makeup lab are at the instructor's discretion. Depending on the performance of the entire class, the instructor reserves the right to release the bonus points and/or makeup assignment. 5 extra points for TA SPOT evaluation.

Grading

Include the grading scale (A-F) along with the point totals/percentages you will use to calculate the final grade. For example:

A = 90.0%-100%

B = 80.0%-89.9%

C = 70.0%-79.9%

D = 60.0%-69.9%

F = 50.0%-59.9%

Grading Rubric for Lab Reports - 20 points

Section	Resource Material	Points	
Purpose/Objective	Use the handout/ppt/reference material	1.0	
Reaction		2.0 or	
Schematics/Apparatus/Reagent Table		3.0	
Procedure		3.0 or	
Prelab questions		4.0	
Post lab questions		0.0	
Data/Observations/Calculations/Results	In lab work	2.0	
		8.0	
Conclusions			

	A detailed explanation of the results, not just mentioning successful/unsuccessful. Report yield as needed	3.0	
Total		20	

List of Modules with Description and Submission Dates for Student Groups* A and B

To accommodate the safety and better hands-on laboratory experience for the students, each lab section will be divided into two groups by the TA at the beginning of the semester. The students are required to stick to their group for the rest of the semester.

Please look at the <https://registrar.unt.edu/registration/spring-registration-guide> for UNT deadlines. UNT holiday: Classes begin July 11; Last day of class – August 11; Grade submission August 15.

GROUP	Dates	Experiment/Module	Details of Activities for the Day
Group A and B	July 12 th	Prep and Safety (from home) Quiz # 1	<p>ITEM 1: Go over your course on Canvas, and ask questions (if any).</p> <p>ITEM 2: Know your TA, check the syllabus, understand the course and activities, and reach out to your TA if you have any questions</p> <p>ITEM 3: Finish the safety quiz (quiz #1), safety agreement (submit)</p> <p>ITEM 4: Review lab report help documents that will help to write a prelab and lab report.</p> <p>Review other documents from the week 1 module to get ready for experiment 1 the next week.</p>

			<p>ITEM 5: (optional) -Watch Labster simulations related to chemical safety and disposal (not graded).</p> <p>ITEM 6: Experiment -1 preparation (finish the prelab quiz, go over experiment details, prepare the prelab, submit the prelab, make sure the safety docs are submitted, gather items required for first in-person lab (goggles, dress code, prelab copy).</p>
Group A	July 13 th	Experiment 1- Oxidation (Cyclohexanone) in the lab.	<p>ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment.</p> <p>ITEM 2: Work on the lab report to submit on Friday of the same week.</p> <p>On June 13th, Group B will work on any remaining (unsubmitted) items for experiment 1 from home.</p>
Group B	July 14 th	Experiment 1- Oxidation (Cyclohexanone) in the lab.	<p>ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment.</p> <p>ITEM 2: Work on the lab report to submit on Saturday of the same week.</p> <p>On June 9th, Group A will work on the report1 from home.</p>
Group A and B	July 15, 16, 17.	Experiment 2 – Diels Alder Reaction, Includes Cracking Process. (preparation from home)	<p>ITEM 1: Make sure the lab report for experiment 1 is submitted on/before the due date (Friday for Group A and Saturday for Group B)</p> <p>ITEM 2: Finish prelab quiz for experiment 2 and prelab procedure document for experiment 2.</p>
Group A	July 19 th	Experiment 2 – Diels Alder Reaction, Includes Cracking Process. (in the lab)	<p>ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment.</p> <p>ITEM 2: Work on the lab report to submit 2 days after finishing the experiment.</p>

			On July 19th Group B will work on any remaining (unsubmitted) items for experiment 2 from home.
Group B	July 20th	Experiment 2 – Diels Alder Reaction, Includes Cracking Process. (in the lab)	ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment. ITEM 2: Work on the lab report to submit 2 days after finishing the experiment. GROUP A on 20th will prepare for Experiment 3 (finish prelab quiz and prelab document) from home.
Group A	July 21 st	Experiment 3 – Grignard Synthesis (in the lab)	ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment. ITEM 2: Work on the lab report to submit 2 days after finishing the experiment. GROUP B on 21st will prepare for Experiment 3 (finish prelab quiz and prelab document) from home
Group A and B	July 22, 23, 24.	Experiments 3 and 4	Preparation time for next experiment and if any reports are not submitted, take care of it.
Group B	July 26 th	Experiment 3 – Grignard Synthesis (in the lab)	ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment. ITEM 2: Work on the lab report to submit 2 days after finishing the experiment. GROUP A on 26 will prepare for Experiment 4 (finish prelab quiz and prelab document) from home
Group A	July 27 th	Experiment 4 – Friedel Crafts Acylation (in the lab)	ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment.

			<p>ITEM 2: Work on the lab report to submit 2 days after finishing the experiment.</p> <p>GROUP B on 27 will prepare for Experiment 4 (finish prelab quiz and prelab document) from home</p>
Group B	July 28 th	Experiment 4 – Friedel Crafts Acylation (in the lab)	<p>ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment.</p> <p>ITEM 2: Work on the lab report to submit 2 days after finishing the experiment.</p> <p>GROUP A on 28 will prepare for Experiment 5 (finish prelab quiz and prelab document) from home</p>
Group A and B	July 29, 30, 31.	Experiments 4 and 5	Preparation time for next experiment and if any reports are not submitted, take care of it.
Group A	August 2 nd	Experiment 5 – Soap Synthesis (in the lab)	<p>ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment.</p> <p>ITEM 2: Work on the lab report to submit 2 days after finishing the experiment.</p> <p>GROUP B on the 2nd will prepare for Experiment 5 (finish prelab quiz and prelab document) from home</p>
Group B	August 3 rd	Experiment 5 – Soap Synthesis (in the lab)	<p>ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment.</p> <p>ITEM 2: Work on the lab report to submit 2 days after finishing the experiment.</p>

			GROUP A on the 3rd will prepare for Experiment 6 (finish prelab quiz and prelab document) from home
Group A	August 4 th	Experiment 6 – Dye Synthesis (in the lab)	ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment. ITEM 2: Work on the lab report to submit 2 days after finishing the experiment. GROUP B on the 4th will prepare for Experiment 6 (finish prelab quiz and prelab document) from home
Group A and B	August 5, 6, 7.	Quiz # 2 and Unknown Assignment	Both groups will take quiz #2 and submit it.
Group B	August 9 th	Experiment 6 – Dye Synthesis (in the lab)	ITEM 1: Perform the experiment in the lab using the prelab document. Carry the prelab doc to finish the experiment. ITEM 2: Work on the lab report to submit 2 days after finishing the experiment. GROUP A on the 9th has no activities unless any lab reports or quiz #2 are not submitted.

Brief description of activities

Laboratory Experiment (in-person and online)	Short Description and Objectives
Safety and guidelines	Students are required to review the safety rules and sign the document. Send it over to the TA. Review the safety materials, finish the safety quiz, and send it over to the TA. Review the syllabus, and “lab report help” documents, and get ready for the first in-person lab the following week. Able to acquire skills to write a lab report. Able to practice safety guidelines in the organic laboratory.

Spectroscopy (Assignment)	<p>The students will be supplied with a handout that contains an unknown molecule. The molecular formula, molar mass, FTIR, Proton NMR, and Carbon-NMR spectra of the molecule will be included in the handout. The weekly module will cover the information required to resolve the structure. Able to describe different steps required to resolve a molecular structure based on FTIR and NMR spectral data. Able to acquire the skills required to resolve an unknown organic molecular structure. This is a homework assignment A <i>Labster Simulation Module is available for practice, the Labster simulation is not graded.</i></p>
Experiment 1: Oxidation of Cyclohexanol	<p>Synthesis of cyclohexanone following oxidation mechanism. The module material will cover concepts of oxidation and procedure for making cyclohexanone starting from cyclohexanol and sodium hypochlorite (oxidizing agent) in the lab. The cyclohexanol will be synthesized starting from cyclohexanol. The formation of the final product will be analyzed using a 2,4-DNP reagent. The yield of the product will be determined. Able to characterize the oxidation of cyclohexanol (or similar compounds). Able to acquire skills required to perform distillation, pH testing, and salting-out procedures for future labs. Able to perform a confirmation reaction for the identification of the final product and differentiate it from the starting materials. Able to describe different steps involved in the oxidation of cyclohexanol in the final lab report. Able to compile data and observations for the lab report.</p>
Experiment 2: Grignard Reaction (Synthesis of Benzoic Acid)	<p>Synthesis of Benzoic acid following the Grignard reaction mechanism. The module material will cover concepts of Grignard reaction and reaction conditions for making Grignard reagents. The material will cover the experimental procedure for making benzoic acid starting from bromobenzene, Mg metal, and dry ice. The conditions for making the Grignard reagent (phenylmagnesium bromide intermediate) will be analyzed. The formation of the final product will be analyzed using melting point data. The yield of the product will be determined. Able to characterize the formation of a Grignard Reagent starting from aryl halide and Mg metal. Able to characterize the significance of dry conditions for this reaction. Able to characterize the mechanism of formation of GR and the final product. Able to acquire skills, namely grinding of metals, handling dry solvents, and recrystallization of organic compounds. Able to describe the different steps involved in the final lab report. Able to compile data, observations, and conclusions for the lab report.</p>
Experiment 3: Diels-Alder Reaction	<p>Synthesis of cis-Norbornene following Diels-Alder reaction mechanism. The module material will cover the concepts of the Diels-Alder mechanism and procedure for making cis-Norbornene starting from Maleic anhydride (dienophile) and cyclopentadiene (diene). The significance of Diels-Alder reactions for making cyclic rings will be analyzed. The experimental video will include cracking of the dicyclopentadiene, a very useful technique for the isolation of cyclopentadiene starting material. The</p>

	cracking process will be performed in the lab. The formation of the final product will be analyzed using melting point data. The yield of the product will be determined. Able to characterize the pericyclic reaction between diene and dienophile. Able to characterize the Diels-Alder reaction mechanism. Able to acquire skills required to perform cracking and recrystallization for future labs. Able to describe the different steps involved in the final lab report. Able to compile data, observations, and conclusions for the lab report.
Experiment 4: Friedel Crafts Acylation (Acylation of Ferrocene)	Synthesis of acetyl ferrocene following Friedel-Crafts Acetylation (FCA) mechanism. The module material will cover concepts of FCA and the procedure for making acetyl ferrocene starting from ferrocene and acetic anhydride. The significance of TLC and CC techniques for the isolation and purification of acetyl ferrocene will be analyzed. The formation of the final product will be analyzed using CC and melting point data. The yield of the product will be determined. Able to characterize the formation of an acylation product starting from ferrocene and acetic anhydride. Able to characterize the significance of TLC and CC techniques for this reaction. Able to characterize the mechanism and formation of different products in the reaction. Able to acquire new skills, namely CC, for future labs. Able to describe the different steps involved in the final lab report. Able to compile data, observations, and conclusions for the lab report.
Experiment 5: Saponification (Ester Hydrolysis, Soap Formation)	Synthesis of sodium stearate (soap) following saponification mechanism. The module material will cover concepts of saponification, cleaning action of soap, differences between soaps and detergents, and procedure for making sodium stearate starting from glycerol tristearate and sodium hydroxide. The significance of soap and the cleaning action of soap and its applications for differentiating soft vs hard water will be analyzed. Able to characterize the formation of soap starting from an ester in the presence of sodium hydroxide. Able to characterize the significance of soap for cleaning action. Able to differentiate the soft vs hard water using soap. Able to acquire skills for performing salting out and refluxing in organic labs. Able to describe the different steps involved in the final lab report. Able to compile data, observations, and conclusions for the lab report.
Experiment 6: Dyes (Synthesis of Methyl Orange Dye)	Synthesis of Methyl Orange following diazo coupling mechanism. The module material will cover concepts of diazotization reaction, the significance of pH sensitive colored azo organic compounds (dyes), and the dyeing process and procedure for making Methyl Orange starting from Sulfanilic acid in two steps. The ability of Methyl Orange dye synthesized in the lab will be analyzed for dyeing. Able to characterize the formation of methyl orange starting from sulfanilic acid. Able to characterize the significance of dyes for dyeing. Able to acquire skills for handling strong acids in the organic labs. Able to describe the different steps involved in the final lab report. Able to compile data, observations, and conclusions for the lab report.

Make-up Assignment – no makeup assignment is included in the syllabus	The instructor will decide on the inclusion of a makeup assignment depending on the progress/grades of the entire class. If a makeup assignment is introduced, the assignment will be either a Labster module or an experimental video that students need to finish for additional points.
Experiments Not Covered in Summer Semester	Aldol Condensation (synthesis of Dibenzal); Electrophilic Aromatic Substitution (Nitration of methyl benzoate), Aspirin Synthesis.
Spectroscopy (Assignment)	The students will be supplied with a handout that contains an unknown molecule. The molecular formula, molar mass, FTIR, Proton NMR, and Carbon-NMR spectra of the molecule will be included in the handout. The weekly module will cover the information required to resolve the structure. Able to describe different steps required to resolve a molecular structure based on FTIR and NMR spectral data. Able to acquire the skills required to resolve an unknown organic molecular structure. This is a homework assignment A Labster Simulation Module is available for practice, the Labster simulation is not graded.

Course Evaluation

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course. Students will receive 5 bonus points for the SPOT evaluation of their TA. Students are required to submit proof of SPOT evaluation to their TA.

Attendance

Students are required to attend the in-person labs and to abide by the attendance policy established for the course. You must communicate with the professor and the TA before being absent, so you, the professor, and the TA can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor and TA if you are unable to attend in-person labs because you are ill, in mindfulness of the health and safety of everyone in our community. Please provide the required excuse note/documentation for the absence. Visit the [University of North Texas' Attendance Policy](http://policy.unt.edu/policy/15-2-) (<http://policy.unt.edu/policy/15-2->) to learn more. There is no possibility of remote instructions for labs, students are required to attend the in-person labs. Please reach out to DOS for excuses related to in-person labs.

Attendance to in-person labs is *mandatory*. Visit the [University of North Texas' Attendance Policy](http://policy.unt.edu/policy/15-2-) (<http://policy.unt.edu/policy/15-2->) to learn more. **Excused Absences:** An absence may be excused for the following reasons: 1. religious holy day, including travel for that purpose; 2. active military service, including travel for that purpose; 3. participation in an official university function; 4. illness or other extenuating circumstances; 5. pregnancy and parenting under Title IX; and 6. when the University is officially closed. The students are required to submit the reports along with the excused absence documentation for full points. Arrange with the TA for the late submission of the report. Students without excused absence documentation can receive partial credit only with the submission of the full report. The data and observations can be obtained from the video demo of the missed experiment. Students excused due to COVID 19 concerns are required to submit the reports online. Please reach out to your TA to request extra time for late submissions.

Late reports will not be accepted unless the student encounters an emergency or extreme situation. All work turned in after the deadline will receive a grade of zero unless the student has a university-excused absence and provides documentation within 48 hours of the missed deadline. Do not expect any partial credit for the late reports unless prearranged with the TA. ***Swapping Lab Sections is strictly NOT allowed.***

Examination Policy

There are no exams in this course

Assignment Policy

The exact due dates for each experiment (module) depend on the lab section. Only PDF and MS word documents are acceptable formats for online and in-person submission, detailed instructions will be provided by the TA of the individual section during the first lab. The TAs will employ Turnitin or similar software for assignment submission. ***Do not expect any partial credits for late returns unless there is an emergency or excused absence (as per UNT guidelines) or prearrangement with the TA. Cheating or copying other student reports will result in ZERO.***

The University is committed to providing a reliable online course system to all users. However, in the event of an unexpected server outage or any unusual technical difficulty which prevents students from completing a time-sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and contact the UNT Student Help Desk: helpdesk@unt.edu or 940.565.2324 and obtain a ticket number. The instructor and the UNT Student Help Desk will work with the student to resolve any issues at the earliest possible time.

Instructor Responsibilities and Feedback

The instructor is fully responsible for designing the experiments and the entire syllabus for this course. The instructor is assisted by Organic Laboratory supervisor Dr. Charles Browning who will be responsible for the smooth operation of organic labs. The designated TA for each section is fully in charge of the lab. The students will be provided all the help with every item related to experiments, safety, lab reports, and quizzes as required/requested by the student. The instructor will provide all the information required to perform in-person and online labs, all information is uploaded on Canvas or uploaded during the semester as needed. TA's are responsible for grading the lab reports and quizzes, TA's and instructors will try to respond to and address students' questions/emails within 48 hours. TA's will provide feedback and grades for the reports within 1-2 weeks after every student has submitted the report.

Syllabus Change Policy

The syllabus copy provides all information for the course but it is not a contract, any changes in the syllabus will be immediately updated to students by the instructor.

UNT Policies

Academic Integrity Policy

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. [Insert specific sanction or academic penalty for specific academic integrity violation.]

ADA Policy

UNT makes reasonable academic accommodations for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to the faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible

in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member before implementation in each class. For additional information see the ODA website (<https://disability.unt.edu/>).

Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Retention of Student Records

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their records; however, information about students' records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classrooms, labs, discussion groups, field trips, etc. Visit UNT's Code of Student Conduct (<https://deanofstudents.unt.edu/conduct>) to learn more.

Access to Information - Eagle Connect

Students' access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail [Eagle Connect](https://it.unt.edu/eagleconnect) (<https://it.unt.edu/eagleconnect>).

Student Evaluation Administration Dates

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14, and 15 [insert administration dates] of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the [SPOT website](http://spot.unt.edu/) (<http://spot.unt.edu/>) or email spot@unt.edu.

Survivor Advocacy

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking and/or sexual assault, there are campus resources available to provide support and assistance. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-5652648.

Important Notice for F-1 Students taking Distance Education Courses

Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the [Electronic Code of Federal Regulations website](http://www.ecfr.gov/) (<http://www.ecfr.gov/>). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to the completion of the class. An online or distance education course is a course that is offered principally through the use of television,

audio, or computer transmission including open broadcast, closed circuit, cable, microwave, satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no online or distance education classes may be considered to count toward a student's full course of study requirement.

University of North Texas Compliance

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experiences integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

- (1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.
- (2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

Student Verification

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See [UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses](https://policy.unt.edu/policy/07-002) (<https://policy.unt.edu/policy/07-002>).

Use of Student Work

A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class and the University is not entitled to use any student work without the student's permission unless all of the following criteria are met:

- The work is used only once.

- The work is not used in its entirety.
- The use of the work does not affect any potential profits from the work.
- The student is not identified.
- The work is identified as student work.

If the use of the work does not meet all of the above criteria, then the University office or department using the work must obtain the student's written permission.

Download the UNT System Permission, Waiver, and Release Form

Transmission and Recording of Student Images in Electronically-Delivered Courses

1. No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery.
2. In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release to use the recording for future classes in accordance with the Use of Student-Created Work guidelines above.
3. Instructors who video-record their class lectures with the intention of re-using some or all of the recordings for future class offerings must notify students on the course syllabus if students' images may appear on the video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings.

Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear on the video. The lecture recordings will be available to you for study purposes and may also be reused in future course offerings.

No notification is needed if only audio and slide capture is used or if the video only records the instructor's image. However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.

Academic Support & Student Services

Student Support Services

Mental Health

UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center) (https://studentaffairs.unt.edu/student-health-and-wellness-center)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (https://studentaffairs.unt.edu/counseling-and-testing-services)
- [UNT Care Team](https://studentaffairs.unt.edu/care) (https://studentaffairs.unt.edu/care)
- [UNT Psychiatric Services](https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry) (https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry)
- [Individual Counseling](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling) (https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)

Chosen Names

A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- [UNT Records](#)
- [UNT ID Card](#)
- [UNT Email Address](#)
- [Legal Name](#)

**UNT eUIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.*

Pronouns

Pronouns (she/her, they/them, he/him, etc.) are a public way for people to address you, much like your name, and can be shared with a name when making an introduction, both virtually and in-person. Just as we ask and don't assume someone's name, we should also ask and not assume someone's pronouns.

You can [add your pronouns to your Canvas account](#) so that they follow your name when posting to discussion boards, submitting assignments, etc.

Below is a list of additional resources regarding pronouns and their usage:

- [What are pronouns and why are they important?](#)
- [How do I use pronouns?](#)
- [How do I share my pronouns?](#)
- [How do I ask for another person's pronouns?](#)
- [How do I correct myself or others when the wrong pronoun is used?](#)

Additional Student Support Services

- [Registrar](https://registrar.unt.edu/registration) (https://registrar.unt.edu/registration)
- [Financial Aid](https://financialaid.unt.edu/) (https://financialaid.unt.edu/)
- [Student Legal Services](https://studentaffairs.unt.edu/student-legal-services) (https://studentaffairs.unt.edu/student-legal-services)
- [Career Center](https://studentaffairs.unt.edu/career-center) (https://studentaffairs.unt.edu/career-center)
- [Multicultural Center](https://edo.unt.edu/multicultural-center) (https://edo.unt.edu/multicultural-center)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (https://studentaffairs.unt.edu/counseling-and-testing-services)
- [Pride Alliance](https://edo.unt.edu/pridealliance) (https://edo.unt.edu/pridealliance)
- [UNT Food Pantry](https://deanofstudents.unt.edu/resources/food-pantry) (https://deanofstudents.unt.edu/resources/food-pantry)

Academic Support Services

- [Academic Resource Center](https://clear.unt.edu/canvas/student-resources) (https://clear.unt.edu/canvas/student-resources)
- [Academic Success Center](https://success.unt.edu/asc) (https://success.unt.edu/asc)
- [UNT Libraries](https://library.unt.edu/) (https://library.unt.edu/)
- [Writing Lab](http://writingcenter.unt.edu/) (http://writingcenter.unt.edu/)