

CHM 2211L – Organic Chemistry Laboratory (2 credits)

Room 210 Scott Family Hall (SFH)

Summer 2023

Teaching Assistant	To be assigned
Faculty Coordinator	Dr. Tammy A. Davidson, davidson@chem.ufl.edu , Sisler 429B Please use Canvas or your official UF email for any correspondence
TA Office Hours	See Canvas site for schedule (http://elearning.ufl.edu)
Prerequisites	The prerequisite for CHM2211L is completion of either CHM2210 or CHM 2212 with a grade of C or higher, or completion of CHM3217. Please note that CHM2211L is intended to accompany either CHM 2211 or CHM2213, and we expect that you have a good working knowledge of the material covered in those lecture courses. Any students taking CHM2211L without concurrent registration in either CHM2211 or CHM2213 (or prior completion) should be prepared to do outside work as needed.
Course Delivery	This course will meet in-person in SFH 210 during your scheduled lab sessions. Occasional group work may occur via the Zoom platform. You will require a computer with an internet connection to upload assignments and to complete Knowledge Checks.
Course Objectives	The general objectives of this course are to introduce you to common laboratory techniques and equipment used in an organic chemistry laboratory, to help you gain understanding and proficiency in their use, to help you explore the process of doing organic chemistry, and to illustrate representative examples of the useful and important reactions you are learning in CHM 2211 lecture.

FIRST DAY OF LAB

The first lab session will be on **Monday, May 22 for class numbers 10558 and 10559**, and on **Tuesday, May 23 for class numbers 10560 and 10561**. A full schedule for the semester is provided at the end of this syllabus, and the activities for each session are outlined in the Weekly Schedule pages in Module 3 in Canvas.

You must have the following items with you during your first lab session and each lab session thereafter:

- CHM2211L/2200L Lab Manual, 2022-2023 edition (Hayden-McNeil, available at UF bookstores)
- Department approved Safety Glasses/Goggles and proper laboratory attire

You must be wearing department approved safety glasses or goggles and be properly attired to be admitted to the laboratory at all times, even on the first day of lab. Students should wear loose fitting pants and a shirt (with sleeves) that covers the entire torso. There can be no exposed skin at the waist or ankle area. Please refer to the lab manual and the links on the Canvas site for more information on attire and the types of eye protection approved for use in this lab. **Anyone without the necessary materials (listed above), proper safety glasses/goggles, and appropriate clothing will not be allowed in the lab.**

During your first lab session, you will meet your TA and check into the lab. You will need to choose a PIN for the lock on your personal workstation drawer. Be careful and deliberate when entering the code to lock your drawer – you will need to use the same PIN to unlock your drawer the next time you come to lab, so be sure to enter the code carefully when you lock the drawer.

The Materials and Supplies fee that you pay for this course (\$87) covers all reagents/supplies and reasonable breakage/loss of glassware. You are responsible for maintaining all of the glassware and equipment in your personal workstation drawer for the entire semester. Check everything carefully during check-in to make sure all of your equipment is in good working order. Look for star and hairline cracks in your glassware, and check your separatory funnel carefully to make sure there are no leaks. Complete and sign the Safety Form and workstation equipment sheet (found in the “Forms” section of the Lab Manual), and turn them in at the stockroom window to complete the check-in process.

******NOTE: No students will be permitted to check into the lab after Week 3 (see schedule)******

GRADING

Your grade will be determined from two categories in this course. The first category focuses on the experimental and group work for the course, including completion of pre-lab assignments, the data and observations recorded while working in the lab, the notebook summaries submitted upon completion of the experiment, and the infographic group project. The other portion of your grade will be determined by the lab practical and quizzes that assess your understanding of the concepts covered in the course (both technical and the background chemistry), including laboratory safety and various concepts/techniques from the laboratory experiments. Although it is natural to worry about grades, please don't let it become an obsession that ruins your experience in the lab. The course is designed so that the average grade is a B+, and any student who completes all of the assignments and shows a good attitude in the class will earn at least a C.

Grades will be determined from the following factors and weighted as indicated:

<u>Experimental/Group work</u>		<u>Assessment of Understanding</u>	
Pre-Labs	5%	Safety/Policy Quiz	5%
Lab Notebook/Summaries	15%	Lab Practical	15%
In-Person Lab Attendance	10%	Knowledge Checks	15%
Infographic Group Project	15%	Lab Exam	20%

The grading scale will be firmly set as follows: A ≥ 89.5%, A- = 86.5-89.4%, B+ = 83.5-86.4%, B = 76.5-83.4%, B- = 72.5-76.4%, C+ = 69.5-72.4%, C = 61.5-69.4%, C- = 58.5-61.4%, D+ = 54.5-58.4%, D = 50-55.4%, E < 50.0%. There will not be a curve beyond that already included in the scale above, and there is no rounding of scores in Canvas. UF grading policies are at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Explanation of Grade Breakdown:

The **Pre-Lab (PL)** grade consists of your Pre-Lab Assignments which are found in the lab manual for each experiment and are graded on a 5 point scale. See schedule for due dates. Upload a PDF scan of your pre-lab to the Assignments section of Canvas at least 30 minutes prior to the beginning of your lab session. **Anyone who has not submitted a pre-lab may not do the lab that day.**

Lab Notebook/Summaries (NB) are the notes you take during lab and your answers to the post-lab questions from the lab manual, and will be graded on a 10 point scale. Upload a PDF scan of the duplicate pages from your notebook to the Assignments section of Canvas. Your score on the online **Spectroscopy Module Quiz** will also count as a notebook grade. See the schedule for specific due dates.

Various assessments that demonstrate your understanding of the course material are dispersed throughout the semester – see the schedule for specific dates. An online **Safety/Policy Quiz** will be available on Canvas under the Quizzes tab. The **Lab Practical** will assess your ability to determine a melting point range for an unknown compound accurately and your ability to carry out a synthesis and recrystallization using a procedure that was performed earlier in the semester. More details will be given as the practical date approaches. Three periodic **Knowledge Checks** to gauge understanding will be given in Canvas. The **Lab Exam** will be given on campus during an evening assembly exam slot and will evaluate your cumulative knowledge of the concepts/techniques covered in the lab. *****Note: The online safety quiz must be completed on the Canvas site by 11:00pm on Friday, May 26.*****

The Organic Teaching Laboratory is a hands-on learning environment. **Attendance** will be taken during each lab session. Your TA will be assessing your overall engagement in the laboratory and your contributions towards the preparation and peer review of an **Infographic Group Project**. More details will be provided on the Canvas site.

LAB CLEANLINESS AND LATE PENALTIES

You are expected to attend your scheduled lab session, complete the planned activity, clean up your work area, and leave the lab when your lab period ends. Everyone in this course is given the same amount of time to complete the experiments. If you are well prepared, you should have no problem finishing the experiments within the allotted time. **You may not stay late or come in during another lab section to do your experiments.**

You will find a weekly schedule in Module 3 in Canvas and at the end of this syllabus that shows this semester's experiments, along with the due dates for assignments. The following late penalties will be assessed as needed:

Late leaving the lab or leaving a messy workstation.....1 point deduction from Notebook grade per occurrence
Any assignment turned in late.....10% deduction on item for each day late

GRADING DISPUTES AND REQUESTS FOR REGRADES

Pre-Lab, Notebook, and Infographic assignments are graded by your TA using rubrics provided in Canvas. You should address any grading disputes on these items directly to your TA no later than one week after your TA posts the score on graded items in Canvas. Any grading disputes on Knowledge Checks must be addressed via email to the course instructor within one week of the score being posted in the gradebook.

The Lab Practical is graded immediately after submission using the same grading rubric for all samples, which ensures consistent evaluation of sample mass and crystal quality. Regrade requests for the Lab Practical must be submitted on a regrade request form (available at the lab stockroom) within one week of the date on which the papers are returned in the lab.

The Lab Exam will be a multiple choice Scantron assessment and must be completed using a pencil. Bubbling errors will not be negotiated. Additionally, a 5% penalty will be applied for failure to bubble in a correct UF ID number, for a missing or incorrect form code, or filling out the Scantron with pen. Any grading disputes must be presented within one week of the date on which the scores are posted in Canvas.

Requests for re-grades will not be accepted after the deadline has passed. Please note that the purpose of regrading is to make sure all assessments are graded according to the same standard – it is not a means to negotiate for more points. To ensure fairness, the entire assignment will be regraded based on the grading rubric, and grades may go up or down with the regrade. **All re-grade decisions are final.**

COURSE COMMUNICATION POLICY

We will use the Announcements page in Canvas to post information that is relevant to the class as a whole. Please be sure to check the Canvas announcements regularly for updates. If you need to contact your TA or the faculty coordinator, please use the Canvas email tool or your official UF email. We cannot discuss grading or any other course related issues via external email. We will do our best to respond to emails within 24 hours during the work week (Monday-Friday). You should not expect a reply to any email sent after 5pm or over the weekend (or on a holiday) until the next business day.

All students are expected to treat their classmates and instructors with respect, and to follow netiquette guidelines during meetings, Zoom chats, messaging, and emails. For more information, please see the Netiquette Guide on our Canvas site.

ATTENDANCE

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the Undergraduate Catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

This is a hands-on course, and regular attendance and participation is critical to your understanding and overall success in the course. Each laboratory session, you will learn techniques and concepts that will continue to be important throughout the semester. It is essential that you arrive at these sessions on time and prepared for the activity each time that lab meets. **If you are more than 15 minutes late, you will not be allowed to enter the lab and will forfeit attendance points for the day.**

Due to space and time constraints, **there are no makeup experiment days in this course. You may not come in during a different lab period to do any experiments.** Therefore, it is important for you to attend your regularly scheduled lab session. Your TA will be taking attendance during each lab period.

Excused absences are for extenuating circumstances: illness, serious family emergencies, or university approved absences. Please understand that personal issues with scheduling conflicts, such as work, non-emergency dentist or doctor appointments, extracurricular activities, family vacations, etc., do not justify an excused absence from lab. Missing lab due to improper lab attire does not qualify as an excused absence.

If you need to miss a lab session due to extreme circumstances that are beyond your control, you must submit a Request for Excused Absence on the Canvas site **no later than one week after the missed lab session** in order to have your attendance excused. You will need to provide documentation (a doctor's note, University excuse, funeral program, etc.) for anything other than a single day missed due to illness. Any subsequent absence due

to illness must be explained with proper documentation. **Excused absences are for attendance only – you are responsible for any information presented in the lab and for submitting the associated pre-lab and notebook assignments, even if you are absent.** See the Weekly Schedule pages in Module 3 of Canvas for details.

Any student who misses more than 25% of the in-person lab sessions during the semester (excluding religious observance, disability related absences, or military leave) will be subject to a grade deduction of 5% per additional missed session.

Please note: If you miss a Knowledge Check, the Lab Practical, or the Lab Exam, you must contact Dr. Davidson within 24 hours of missing the assessment to request a make-up.

PRE-LAB ASSIGNMENTS AND LABORATORY NOTEBOOK/SUMMARIES

Before you come to your lab session, carefully read through the scheduled experiment and complete your Pre-Lab Assignment (the colored sheet found after each experiment in the lab manual). These Pre-Lab Assignments are designed to ask you to think about the lab procedure to be performed, understand how it relates to other aspects of chemistry, and guide you in your preparation for the experiment. You may need to refer to your lecture text to help you answer some of the questions. Don't wait until just before lab to get prepared – instead, work on your Pre-Lab ahead of time so you can ask your TA for help if you are confused about anything. **Turn your pre-lab assignment via upload to Canvas at least 30 minutes prior to the beginning of your in-person lab session.** Additionally, you will find that the labs will go much smoother if you have read through everything ahead of time, so be sure to do a good job in getting organized.

Your laboratory notebook should be an accurate, legible, permanent record of everything that you do in the laboratory. Use the carbonless duplicate sets at the back of your manual, and start each new experiment on a fresh page. Include the title of the experiment, the chemical reaction that is being performed (if applicable), any physical data that is needed in the experiment (such as molar masses, melting points, boiling points, and densities), and any important safety alerts. While you are conducting an experiment, write everything in your notebook. Record your activities (a brief procedure – does not need to be complete sentences) and all data (weights, volumes, reaction times, melting or boiling points, calculations, etc.) and observations (colors, textures, odors, visual indications of reaction, etc.) directly into your notebook as you do your experiment. When you have finished the experiment, you should include a brief summary of your results and make any conclusions that can be drawn from your data. Also, be sure to answer the post-lab questions in your notebook. You will turn in scanned copies of the duplicate pages from your notebook via Canvas upload.

Be sure to consider the following items when preparing your notebook:

- The notebook must be kept in non-erasable, waterproof ink (preferably ballpoint)
- All errors must be crossed out with a single line – no scribbles or white-out!
- Do not skip or tear out pages – cross out with an X if the entire page is incorrect
- Experiments must have titles and include the dates that they are performed
- Include the names of your teammates (if applicable)
- There should be enough detail so that someone with a reasonable understanding of organic chemistry (like your TA) could repeat your work using only your notebook
- Accuracy and truth are more important than a “pristine” entry
- All entries must be made while the experiment is conducted and the duplicate pages must be turned in to the TA for grading after completion of the experiment – see the schedule for due dates

Grading rubrics for the Pre-Labs and Notebooks are provided on Canvas.

A NOTE ON TEAMWORK AND PARTICIPATION

Teamwork is an integral component of doing science. In today's world, researchers depend on collaboration with their colleagues to share ideas, spark creativity, maximize strengths, troubleshoot problems, and share limited resources. The days of lone scientists toiling away in lab by themselves are over. Teaching labs are no exception. The organic lab is an ideal place to exemplify the benefits of working together towards a common goal. Teamwork allows us to explore more sophisticated chemistry and develop a deeper understanding of what is happening in our experiments through active discussion.

You will see that many of our experiments and the infographic project will consist of activities done in small teams. The goal of this approach is that everyone participates in the process, and that can only happen if you are prepared when you come to class. Members of the team are expected to contribute equally, and your TA will be evaluating your participation and that of your teammates throughout the course.

ASSEMBLY EXAM CONFLICTS

The official timeslot for assembly exams during the summer term is for periods E1-E2 (7:00-9:45 pm)**. None of our laboratory sections this summer extend past 6:15pm, so we do not anticipate any conflicts with assembly exams and normal weekly activities.

**Any other exams that are scheduled for outside of their normal class time, but not in an official assembly exam block, are not considered to be assembly exams by the university. We are not required to accommodate test conflicts if they are not official assembly exams as scheduled through the registrar's office. Please discuss makeup exam options with your instructor in the other course before requesting accommodations for this lab.

ACADEMIC HONESTY GUIDELINES

The University of Florida holds its students to the highest standards, and we encourage students to read the University of Florida Student Honor Code and Student Conduct Code (Regulation 4.040), so they are aware of our standards. Any violation of the Student Honor Code will result in a referral to Student Conduct and Conflict Resolution and may result in academic sanctions and further student conduct action. The two greatest threats to the academic integrity of the University of Florida are cheating and plagiarism. Students should be aware of their faculty's policy on collaboration, should understand how to properly cite sources, and should not give nor receive an improper academic advantage in any manner through any medium. You can find more information about UF's Academic Honesty Policy from the Dean of Students Office website at <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>.

INFORMATION FOR STUDENTS WITH DISABILITIES

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <http://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester. Note that DRC accommodations cannot be applied retroactively.

EVALUATIONS

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

THE SCHEDULE FOR THE SEMESTER CAN BE FOUND ON THE FOLLOWING PAGES.

SCHEDULE OF ACTIVITIES – CHM2211L – SUMMER 2023[†]

Week	Dates	Activity	
1	5/15 – 5/19	No lab sessions this week. You should use this time to read over the syllabus, familiarize yourself with the Canvas site, and review the content in the Safety and Laboratory Procedures module in Canvas. The online Safety/Policy Quiz[†] will be available beginning May 15.	
2	5/22 – 5/23	Check-in (read pgs. v-xv and Chapter 1 in manual and review information in Modules 1 and 2 on Canvas before lab) <i>Chapter 2:</i> Introduction to Melting Point – view video in Modules area before lab	
	5/24 – 5/25	<i>Items Due:</i>	<ul style="list-style-type: none"> • Acetophenetidin Pre-Lab (PL) – upload to Canvas at least 30 minutes prior to start of lab period • Online Safety Quiz[†] due on Friday, May 26 by 11:00pm
3	5/29 – 5/30	Memorial Day Holiday – no labs Monday or Tuesday (all sections)	
	5/31 – 6/1	<i>Items Due:</i>	<ul style="list-style-type: none"> • Knowledge Check 1 – opens at 5pm on 6/1, due by 11:00pm on 6/2
****No students will be permitted to check in after this point****			
4	6/5 – 6/6	<i>Items Due:</i>	<ul style="list-style-type: none"> • Spectroscopy PL – upload to Canvas at least 30 minutes prior to start of lab period • Extraction PL – upload to Canvas at least 30 minutes prior to start of lab period
	6/7 – 6/8	<i>Items Due:</i>	<ul style="list-style-type: none"> • Acetophenetidin Notebook (NB)

Week	Dates	Activity
5	6/12 – 6/13	Chapter 8: Electrophilic Aromatic Substitution Applications of Organic Chemistry: An Infographic Group Project
		<i>Items Due:</i> <ul style="list-style-type: none"> • EAS PL – upload to Canvas at least 30 minutes prior to start of lab period
5	6/14 – 6/15	Chapter 6: Synthesis and Testing of Biodiesel, day 1
		<i>Items Due:</i> <ul style="list-style-type: none"> • Biodiesel PL – upload to Canvas at least 30 minutes prior to start of lab period • Extraction NB • Knowledge Check 2 – opens at 5pm on 6/9, due by 11:00pm on 6/10
6	6/19 – 6/20	Juneteenth Holiday – no labs Monday or Tuesday (all sections)
	6/21 – 6/22	Chapter 6: Synthesis and Testing of Biodiesel, day 2
<i>Items Due:</i> <ul style="list-style-type: none"> • EAS NB • Online Spectroscopy Module quiz due on 6/23 at 11:00pm (counts as a NB grade) 		
**** UF Summer Break – no classes June 26 – 30 ****		
7	7/3 – 7/4	Independence Day holiday – no labs Monday or Tuesday (all sections)
	7/5 – 7/6	Chapter 9: Extraction and TLC of Pigments in Spinach Clean Glassware for Lab Practical
<i>Items Due:</i> <ul style="list-style-type: none"> • Spinach PL – upload to Canvas at least 30 minutes prior to start of lab period • Biodiesel NB 		
8	7/10 -7/11	Lab Practical (during regular lab session)
	7/12 – 7/13	Chapter 12: Making Polymers, Parts 2 and 3 Chapter 13: Renewable Block Copolymers, Part 1
<i>Items Due:</i> <ul style="list-style-type: none"> • Polymers PL • Spinach NB • First submission of Infographic Group Project due by Friday, July 14 at 11:00pm • Peer reviews of Infographic Group Projects assigned at 8:00am on 7/15 		

Week	Dates	Activity
9	7/17 – 7/18	Chapter 13: Renewable Block Copolymers, Part 2
	7/19 – 7/20	Chapter 13: Renewable Block Copolymers, Part 3
		Items Due:
10	7/24 – 7/25	Chapter 7: Synthesis of Fluorescent Coumarin Derivatives, Parts 1 and 2
	7/26 – 7/27	Chapter 14: Dyes and Dyeing, Checkout
		Items Due:
11	7/31 – 8/1	Lab Practical makeups – excused absences only. No other labs scheduled this week. Finish revisions of infographic and submit any outstanding assignments. **This is the final week for any course related activities for CHM2211L.**
	8/2	Lab Exam – Wednesday, August 2 at 7:00pm. See Canvas site for room locations.
	8/3 – 8/4	Items Due: <ul style="list-style-type: none"> • Coumarins NB • Dyes NB • Final submission of Infographic Group Project due Friday, 8/4 by 11:00pm. • Any late/makeup PL or NB submissions must be made by 8/6 in order to be to be considered for grading.
12	8/7 – 8/11	No activities scheduled for this week

†Schedule may change due to unforeseen events – see course Canvas site for any updates.

‡ Available on the Canvas website beginning May 15. You must complete this quiz no later than **11:00pm on May 26.**