

CHM 2211L – Organic Chemistry Laboratory (2 credits)
Room 210 Chemistry/Chemical Biology Building (CCB)
Summer 2021

Teaching Assistant	To be assigned – see Canvas site
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 to understand these concepts.
Course Delivery	This course will meet in-person in CCB 210 during one of your scheduled lab sessions, and synchronously via the Zoom platform during the other scheduled lab session. You will require a computer with an internet connection and a functional webcam and microphone for Zoom meetings.
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.

IN-PERSON LABS WILL BEGIN ON MONDAY, MAY 17
(ATTEND YOUR SCHEDULED SESSION – SEE CANVAS FOR DETAILS AND ZOOM LINKS)

LAB POLICIES AND COVID-19

We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.

- You are required to wear approved face coverings at all times during class and while inside buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
- In order to maintain physical distancing (at least 6 feet between individuals) in our laboratory space, students will be attending one in-person session in CCB 210 each week, and will have an online Zoom meeting during their other scheduled lab session. While in the laboratory, please utilize the designated workstation areas and maintain appropriate spacing between students. Please do not move any equipment to an alternate location.

- Each student will be assigned to a balance, melting point apparatus, and a sink. You will be sharing these items with no more than two other students during a lab session. These common touch areas will be cleaned prior to the start of each lab session.
- Sanitizing supplies are available in the lab for you to wipe down your workstation prior to beginning your experiments and at the end of the class.
- Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
- **If you are sick, please stay home.** We are counting on everyone to follow this simple policy in order to maintain the health and safety of all students, TAs, lab staff, and faculty involved with this course.
- If you are experiencing COVID-19 symptoms ([Click here for guidance from the CDC on symptoms of coronavirus](#)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. [Click here for UF Health guidance on what to do if you have been exposed to or are experiencing COVID-19 symptoms.](#)
- Course materials will be provided to you, and you will be given a reasonable amount of time to make up work. [Find more information in the university attendance policies](#) and in the Attendance section of this syllabus.

FIRST IN-PERSON SESSION – CHECKING IN

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

- CHM2211L/2200L Lab Manual, 2020-2021 edition (Hayden-McNeil, available at UF bookstores)
- Department approved Safety Glasses/Goggles
- Proper attire, including face mask worn over nose and mouth at all times

You must be wearing department approved safety glasses or goggles, a face mask that covers your nose and mouth, 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), the proper safety glasses and clothing, or who is not wearing a mask that covers their nose and mouth will not be allowed in the lab.**

During your first in-person session, you will be assigned to a lab bay, meet your TA, and be assigned to your laboratory workstation. 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, so be careful to enter the code correctly when you lock the drawer.

The Materials and Supplies fee that you pay for this course (\$88) 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.

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 participation in group activities/projects during the Zoom sessions. The other portion of your grade will be determined by quizzes that assess of your understanding of the concepts covered in the course (both technical and the background chemistry), including laboratory safety, the case study discussions, and 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 average grade for this course 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 Quiz	5%
Lab Notebook/Summaries	10%	Knowledge Checks	10%
In-Person Lab Attendance	10%	Lab Exam	30%
Group Work/Zoom Activities	30%		

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. Upload a PDF scan of your pre-lab to the Assignments section of Canvas at least 30 minutes prior to the beginning of your in-person 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 gauge your understanding of the course material are dispersed throughout the semester – see the schedule for specific dates. An **Online Safety Quiz** will be available on Canvas under the Quizzes tab. Five periodic **Knowledge Checks** will be administered in Canvas during the semester and will assess your understanding of the experiments/discussions. Finally, the **Lab Exam** will be given as an on-campus evening assembly exam on Tuesday, July 27 (tentative) and will evaluate your cumulative understanding of the concepts/techniques covered in the course. *****Note: The online safety quiz must be completed on the Canvas site by 11:00pm on Friday, May 21. No extensions.*****

During the Zoom meetings for the course, we will be working on various **Case Studies/Group Work** to supplement the experiments you are conducting during the in-person session. These case study discussions and group activities will focus on experimental design, spectroscopic methods, using library resources, applications of organic chemistry, and peer review of group work. More details will be provided with each activity.

GRADING DISPUTES AND REQUESTS FOR REGRADES

All lab assignments are graded by your TA, so you should address any grading disputes directly to your TA no later than three days after your TA posts your score on graded items. **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 papers were 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.**

LAB POLICIES AND LATE PENALTIES

You are expected to attend your scheduled lab session, complete the scheduled 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 on 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 messy workstation.....1 point deduction from Notebook grade per occurrence
Any assignment turned in late.....10% deduction on item for each day late

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. Each in-person laboratory period and Zoom 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. 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.

In general, acceptable reasons for absence from class include illness, serious family emergencies, court-imposed legal obligations (e.g., jury duty or subpoena), special curricular requirements (e.g., judging trips, field trips, professional conferences), military obligation, tropical weather conditions, religious holidays, and participation

in official university activities such as music performances, athletic competition or debate. 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.

If you need to miss an in-person lab session or zoom meeting, you must submit a Request for Excused Absence in Canvas **no later than one week after the missed lab session** in order to have the request considered for approval. You will need to provide documentation (a doctor's note, screenshot of Return to Campus status, University excuse, funeral program, etc.) for anything other than a single day missed due to illness. Any illness that requires you to miss more than one lab session must be explained with proper documentation. **You are responsible for any information presented in the lab even if you are absent.**

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

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 most of our Zoom discussions 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 the discussion. 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. Since the pedagogical approach of this course depends heavily on student engagement and interaction, you are required, at a minimum, to participate in class activities through the audio function of Zoom. Your video presence is invited as well.

PRE-LAB ASSIGNMENTS AND LABORATORY NOTEBOOK/SUMMARIES

Before you come to the in-person 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. **No one will be permitted to do the lab without a completed Pre-Lab assignment – your TA will ask you to leave the lab.** 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

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 the 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/>.

SCHEDULE OF EXPERIMENTS – CHM2211L – SUMMER 2021[†]

Week	Date	Session	Activity
1	5/10 – 5/11	In-Person	No in-person sessions this week. You should use Monday and Tuesday to read over the syllabus and familiarize yourself with the Canvas site. Be sure to review the content in the Safety and Laboratory Procedures module in Canvas. The Online Safety Quiz will be available beginning May 12.
	5/12 – 5/14	Zoom	Meet with TAs via Zoom during your regular session this week for general Q&A about the course and upcoming check-in day. See Canvas announcements for details and Zoom link.
2	5/17 – 5/21	In-Person	Check-in (read pgs. v-xv and Chapter 1 in manual and watch Check-In Day videos in Modules area on Canvas before lab) <i>Chapter 2: Introduction to Melting Point</i> – view video in Modules area before lab
		Zoom	Planning for next week's lab – tips, pointers, and a review of calculations
		Items Due	<ul style="list-style-type: none"> • Online Safety Quiz[†] due on Friday, May 21 by 11:00pm • Knowledge Check 1: available at 2pm on 5/21, due 9am on 5/24
3	5/24 – 5/28	In-Person	<i>Chapter 4: Synthesis of Acetophenetidin</i> (Parts 1, 3, and 4)
		Zoom	Lady Tasting Coffee: A Case Study in Experimental Design
		Items Due	<ul style="list-style-type: none"> • Acetophenetidin Pre-Lab (PL) due on in-person day • Knowledge Check 2: available at 2pm on 5/28, due 9am on 6/2
****No students will be permitted to check in after Week 3 without excused absence****			
4	5/31 – 6/4	May 31: Memorial Day Holiday – no classes	
		In-Person	None – use this time to work on the <i>Using Library Resources</i> module in Canvas
		Zoom	<i>Chapter 3: Identification of Organic Compounds using Spectroscopy</i> (view Spectroscopy module on Canvas before coming to discussion) Note: All MW sections will have zoom session on Wednesday
Items Due	<i>none</i>		
5	6/7 – 6/11	In-Person	<i>Chapter 5: Extraction, Parts 4 and 5</i> – watch dye extraction demo and Kd videos in Modules area prior to coming to lab
		Zoom	Case Study: Bilirubin: E-/Z-, But Not Easy
		Items Due	<ul style="list-style-type: none"> • Extraction PL due on in-person day • Acetophenetidin notebook (NB) due • Knowledge Check 3: available at 2pm on 6/11, due 9am on 6/14

Week	Date	Session	Activity
6	6/14 – 6/18	In-Person	<i>Chapter 9: Extraction and TLC of Pigments in Spinach</i>
		Zoom	Case Study: Cancer Cure or Conservation: A Question of Health for Humans and the Ecosystem
		Items Due	<ul style="list-style-type: none"> • Spinach PL due on in-person day • Extraction NB due • Online Spectroscopy Module due on 6/18 at 11:00pm (counts as a NB grade)
<i>Summer Break Week – 6/21-6/25 – no lab meetings</i>			
7	6/28 – 7/2	In-Person	<i>Chapter 8: Electrophilic Aromatic Substitution</i>
		Zoom	Applications of Organic Chemistry: A Group Project
		Items Due	<ul style="list-style-type: none"> • EAS PL due on in-person day • Spinach NB due • Knowledge Check 4: available at 2pm on 7/2, due 9am on 7/7
8	7/5 – 7/9	<i>Independence Day Holiday – no lab sessions on Monday or Tuesday (no in person labs this week)</i>	
		Zoom	Case Study: Hall of Fame or Shame? The Chemistry of a Designer Drug Note: All sections will have their Zoom meetings on Wednesday and Thursday this week (no meetings on Friday)
		Items Due	none
9	7/12 – 7/16	In-Person	<i>Chapter 12: Making Polymers</i>
		Zoom	Case Study: Organic Chemistry and Your Cell Phone: OLEDs
		Items Due	<ul style="list-style-type: none"> • Polymers PL due on in-person day • EAS NB due • Knowledge Check 5: available at 2pm on 7/16, due 9am on 7/19
10	7/19 – 7/23	In-Person	<i>Chapter 14: Dyes and Dyeing and Checkout</i>
		Zoom	Applications of Organic Chemistry: A Group Project, progress update and Lab Exam Review
		Items Due	<ul style="list-style-type: none"> • Dyes PL due on in-person day • Polymers NB due

Week	Date	Session	Activity
11	7/26 – 7/30		No class meetings scheduled this week. Use this time to work with your group to finalize and submit your Group Project Infographic.
		Lab Exam	***All Sections*** Tuesday, July 27, 7:00-9:00pm - given as an on-campus assembly exam, see Canvas site for room assignments
		Items Due	<ul style="list-style-type: none"> • Group Project Infographic due Thursday, 7/29 by 7:00pm. • Peer reviews of Group Project Infographics assigned at 8:00am on July 30 • Dyes NB due (7/30)
12	8/2 – 8/6		No class meetings scheduled this week.
		Items Due	Peer reviews of Group Project Infographics due by 7:00pm on Tuesday, August 3 (must complete rubric and leave a comment in order to be considered as completed)

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

‡ Available on the Canvas website beginning May 12. You must complete this quiz no later than 11:00pm on May 21. No extensions.