CHEM 2200L – Organic Chemistry Laboratory (1 credit)
Chemistry/Chemical Biology Building (CCB), Room 210
Spring 2022

Teaching Assistant to be assigned during first laboratory meeting

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Please use email if you need to arrange an appointment

Websites Please see Canvas site (http://lss.at.ufl.edu)

Co-/Pre-Requisites CHM 2200 lecture is a co- or pre-requisite for CHM 2200L. In order to be enrolled in CHM 2200L, you must have already completed and passed CHM 2200 (or CHM2210 in some cases), or you must be currently registered for CHM 2200.

CHM 2200L meets once a week in the Chemistry/Chemical Biology Building (CCB), room 210. The general objectives of this course are to introduce you to some 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 some representative examples of the useful and important reactions you are learning in CHM 2200 lecture.

IN-PERSON LABS WILL BEGIN ON MONDAY, JANUARY 10
(ATTEND YOUR SCHEDULED SESSION – SEE CANVAS FOR DETAILS)

COVID-19 LAB POLICIES

We will have face-to-face instructional sessions to accomplish the learning objectives of this course. In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- **You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.** Please continue to follow healthy habits, including best practices like frequent hand washing.
    - Sanitizing supplies are available in the lab if you wish to wipe down your workstation prior to beginning your experiments and at the end of the class. Hand sanitizing stations will be located in every classroom.

- Continue to visit coronavirus.ufl.edu for up-to-date information about COVID-19 and vaccination.

- While in the laboratory, please utilize the designated workstation areas and do not move any equipment to an alternate location. Practice physical distancing to the extent possible while working in the lab and 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.
    - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
    - If you are withheld from campus by the Department of Health through ONE.UF, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.

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, 2021-2022 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), the proper safety glasses/goggles, and appropriate clothing 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 ($43.50) 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 may check into the lab after January 28 without an excused absence******

GRADING

Your grade will be determined primarily from two sources in this course. The first area is preparation/experimental work done in the laboratory – completion of your pre-lab assignments, your participation in lab discussions, the data and observations that you record in your notebook during lab, the notebook summaries you submit to your TA on completion of the experiment, and your TA's evaluation of your general work habits and attitude. This experimental portion of your grade will be combined with

assessment of your understanding of the experiments as evaluated on quizzes. 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 using the weighting below:

Experimental/Group work	
Pre-Labs	15%
Lab Notebook/Summaries	30%
In-Person Lab Attendance	15%
Participation/TA Evaluation	5%

Assessment of Understanding	
Online Safety Quiz	5%
Knowledge Checks	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 to 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.

An **Online Safety Quiz** will be available on Canvas under the Quizzes tab. Three periodic **Knowledge Checks** will be administered in Canvas during the semester and will assess your understanding of the experiments/concepts covered throughout the semester. See schedule for specific dates. **Note: The online safety quiz must be completed on the Canvas site by 11:00pm on January 24th. No extensions.**

The Organic Teaching Laboratory is a hands-on learning environment. The **Participation/TA evaluation** portion of your grade will be determined based on your overall engagement in the laboratory and your contributions towards the discussion aspects of the lab.

GRADING DISPUTES AND REQUESTS FOR REGRADES

Any grading disputes or requests for re-grades of pre-labs, notebooks, or knowledge checks must be submitted in writing directly to your TA no later than one week after your TA returns your graded items. No requests for re-grades will be honored after the deadline has passed. **Requests for re-grades <u>will not</u> 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 insure fairness, the entire assignment will be regraded based on the grading key, and grades may go up or down with the regrade. **All re-grade decisions are final.**

LAB CLEANLINESS 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

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 our pre-lab discussions will be done in small teams, and many of our experiments are conducted while working with a partner. 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 lab. 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.

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. 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. 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 a lab session, 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, 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 two or more consecutive lab sessions 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 a quiz for an excused absence, you should contact your TA as soon as possible about scheduling a makeup quiz.

PRE-LAB ASSIGNMENTS AND LABORATORY NOTEBOOK/SUMMARIES

Before you come to lab, 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 in to your TA at the beginning of the lab period. 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. (Please don't sit in the hallway outside the lab and copy the pre-lab from your classmates. It just makes you look extremely unprepared and not very serious about your coursework.)

Your laboratory notebook is meant to 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 the duplicate pages from your notebook to your TA at the beginning of the lab period immediately following completion of the experiment.

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

CELL PHONES, CALCULATORS, AND OTHER ELECTRONIC DEVICES

Cell phones and other personal electronic devices are not permitted for use in the laboratory at any time. All cell phones and other devices must be silenced and stored in your storage locker in your bay. If you must make an emergency call during the lab period, please take your phone into the hallway outside of the lab. When you finish, please return your phone to your locker. **NOTE:** You will need to use a calculator many times during this course. You should bring a calculator with you to class – we will not let you use the calculator on your cell phone.

ASSEMBLY EXAM CONFLICTS

Some students enrolled in evening laboratory sections may experience conflicts with their scheduled laboratory session and assembly exams in other courses. The official timeslot for assembly exams during the fall/spring term is for periods E2-E3 (8:20-10:10 pm)**. You are expected to attend your organic lab until 8:00 pm on the evening of an assembly exam. (Many times, you may be able to finish what you need to do that day without any trouble.) Please let your TA know if you have an assembly exam coming up so he or she can assist you with planning your activities in the lab. The lab instructors for the evening sessions will discuss this further with you during check-in day. Please do not complete a request for approved absence form for an assembly exam given periods E2-E3.

**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 – CHM2200L – SPRING 2022†

Dates	Activity	
January 10, 11, 12, 13	First Day Activities (read pgs. *v-xv* and Chapter 1 in manual and watch Check-In Day videos in Modules on Canvas before lab) *Chapter 2:* Introduction to Melting Point – view video in Modules area before lab	
January 17	***Martin Luther King, Jr. Day Holiday – no labs***	
January 18, 19, 20, 24	*Chapter 4:* Synthesis of Acetophenetidin, Part 1 **Watch Glassware Cleaning and Support Rod/Clamps videos in Module area on Canvas**	
	Items Due:	• Acetophenetidin Pre-Lab (PL) • **Online Safety Quiz‡ due on Monday, January 24 by 11:00pm**
****No students will be permitted to check in after January 24 without an excused absence****		
January 25, 26, 27, 31	*Chapter 4:* Synthesis of Acetophenetidin, cont., Parts 3 and 4 (omit part 2)	
February 1, 2, 3, 7	*Chapter 5:* Extraction, Part 2 – watch dye extraction demo videos in Modules area prior to coming to lab	
	Items Due:	• Extraction PL • Acetophenetidin notebook (NB) • **Knowledge Check 1** – available beginning 8am on February 7, due no later than 5pm on February 10
February 8, 9, 10, 14	*Chapter 5:* Extraction, cont., Part 3	
February 15, 16, 17, 21	*Chapter 5:* Extraction, cont., Parts 4 and 5	
February 22, 23, 24, 28	*Chapter 9:* Extraction and TLC of Pigments in Spinach	
	Items Due:	• Spinach PL due • Extraction NB due • **Knowledge Check 2** – available beginning 8am on February 28, due no later than 5pm on March 3
**** UF Spring Break – no lab March 1 – 11***		

Dates	Activity	
March 14, 15, 16, 17	*Chapter 8:* Electrophilic Aromatic Substitution *Chapter 6:* Synthesis and Testing of Biodiesel, day 1	
	Items Due:	• EAS PL due • Biodiesel PL due • Spinach NB due
March 21, 22, 23, 24	*Chapter 6:* Synthesis and Testing of Biodiesel, day 2	
March 28, 29, 30, 31	*Chapter 12:* Making Polymers Checkout	
	Items Due:	• Polymers PL due • Biodiesel NB due
******There are no more in-class activities scheduled this semester.******		
April 4-8	*Items Due:*	• **Knowledge Check 3** – available beginning 8am on April 4, due no later than 5pm on April 7 • Polymers NB due by 4/8
April 11 - 15	*Items Due:*	• Any late/makeup PL or NB submissions must be made by 4/13 in order to be graded.

†Schedule may change due to unforeseen events – see course Canvas site for any updates.
‡ Available on the Canvas website beginning January 10. You must complete this quiz no later than 11:00pm on January 24. No extensions.