



# CHM4413L: Physical Chemistry Laboratory

Spring 2021 (January 11 – April 21)

(2 Credit Hours)

## Course Website

### **Communication Policies:**

**Office Hours:** Individual office hours will be held weekly over Zoom. Office hours can also be given by appointment if you have a conflict with the ones listed.

**Email:** communication with all instructors and TAs should be sent through Canvas and should include your section number and group designation. Please ensure that your Canvas account is configured to send notifications to your preferred email address. We will make a consistent effort to respond to emails within 24 hours if sent Monday through Friday. Do not wait until the last minute to email regarding questions for an assignment, as you may not receive a response until after the deadline.

### **Weekly Lectures:**

Lecture periods are held on Thursdays, 5<sup>th</sup> period (11:45 – 12:35 pm) via Zoom.

For some lectures, lecture material will be recorded and made available for viewing in advance of the weekly lecture period. While the lectures can be viewed at any time, it is expected that all students watch the lectures before the lab period to prepare for the lab.

Our class sessions may be audio or visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

### **Laboratory Sessions:**

Friday periods 6-10 (12:50 – 6:00 pm)

LEI 300 & LEI 248

**Course Materials and Manuals:** All course materials will be available through our course Canvas site linked above. There are no printed textbooks or lab manuals.

### **Learning Objectives**

The overall learning objective of this course is to develop critical thinking through laboratory experiments, analysis of experimental data, and communication of that knowledge. More specifically, objectives include:

- Create quality scientific reports that accurately and professionally communicate your results
- Analyze and present experimental data graphically, cogently, and succinctly
- Maintain a professional scientific notebook

- Interpret and expand scientific protocols and experimental design
- Use and optimize instrumentation for data collection
- Describe various physical chemistry concepts
- Evaluate models for explaining experimental results

## **COVID-19 Related Policies**

### **Course Organization**

This course is organized in a hybrid format utilizing both online and in-person activities. All lectures, office hours, and discussions related to addressing questions about assignments will be held remotely via Zoom. Laboratory experiments will include both in-lab hands-on activities and complementary “dry lab” activities (e.g. computational simulations that relate to the in-lab experiments). We will alternate groups of students weekly between “wet lab” and “dry lab” experiments so that we can accommodate University social distancing policies for all in-person learning activities.

### **In-Lab Expectations**

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-lab interactions.

1. In addition to the generally required personal protective equipment for in-lab activities (see below, you are also required to wear approved face coverings at all times during in-person labs and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to severe consequences, including removal from the lab and filing a report to the Office of Student Conduct and Conflict Resolution.
2. This course has been assigned physical laboratory spaces with enough capacity to maintain physical distancing requirements, which are a minimum of 6 feet apart. Utilize designated benches and maintain appropriate spacing between students and TAs. Please do not switch spaces.
3. Sanitizing supplies are available in the lab. At the beginning and end of each lab you must wipe down your lab bench and any equipment used during the experiment.
4. Guidance will be provided to you on how to enter and exit the laboratory. Practice physical distancing to the extent possible when entering and exiting the laboratory.

### **Illness & Make-up Policies**

1. If you are experiencing COVID-19 symptoms, have tested positive for COVID-19, or are otherwise sick, do not attend in-lab experiments and inform your instructor that you will not be able to attend the planned in-lab activity. If you arrive to lab with visible signs of an active illness you will be asked to leave.
2. If you are forced to miss a lab, please contact the instructor as soon as possible to begin the process of scheduling a make-up.

3. If you are forced to miss multiple weeks, you should contact the UF Disability Resource Center (DRC)

### **General Expectations:**

- It is your responsibility to be prepared each week. The specific requirements will be unique for each experiment, which means you will need to attend the weekly lecture and read the material provided online in order to know what is expected of you.
- All wet lab experiments require pre-lab notebook activities that will be graded as on-line submissions.
- Your TAs will check your material and knowledge of the experiment at the beginning of each lab session to ensure you are adequately prepared, including proper clothing and wearing a mask. If you do not follow the expected safety guidelines, they will turn you away.
- Proper attire is required for each lab period. Closed toed shoes, safety goggles, no tank tops and no shorts.
- Contact your instructors and TAs in advance of any anticipated absences so alternative scheduling can be made.

### **Lab Safety**

In addition to wearing an approved mask (see COVID-19 policies above) safety glasses must be worn at all times in the laboratory. Wear long-legged clothes to protect your skin against spills or bring a lab “kittel.” Closed-toed shoes are mandatory. Remove all pendant jewelry when working in the lab. If you have long hair, you may not let it hang loose but should tuck it away safely so that it doesn’t present a potential hazard for you. Refer to the [ACS safety manual](#), which regulates all safety procedures in the lab. Being prepared is an important aspect of safety.

### **Ethics**

Students are expected to conduct themselves professionally in this course. This includes following the UF Honor Code (see below) and a complete understanding of academic integrity. Plagiarism and data fabrication will not be tolerated.

### **Absences and Tardiness**

Excused absences are allowed in accordance with UF policy. If you are feeling ill or have received a positive test result for COVID-19, do not show up to in-person laboratory experiments and consult with your instructor on an appropriate course of actions. See “COVID-19 Policies” above.

Otherwise do not arrive late to your lab. Tardiness will lead to loss of points on the notebook grade. Unexcused arrival more than 30 minutes late for a lab will result in the student not being admitted to the lab.

### **Late Submission Policy**

Assignments received past posted due dates will receive a late penalty of 10% per day unless the late submission is approved through prior communication with course instructors. If something arises that prevents you from completing the assignment on time, contact the course instructors right away to request an extension.

## Regrade policy

If you believe a mistake has been made on the grading, please notify the professor and your TA through Canvas within 1 week of receiving the assignment. We will look at it and evaluate on a case-by-case basis.

## Resubmission policy

Written experiment reports may be resubmitted up to one week after the initial grade is received for a maximum of 85%. This policy only applies to assignments for which the original submission was not late and contain all required material.

## University Policy on Accommodating Students with Disabilities

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

## Course Grade Computation

Your letter grade will be derived from weighting the following components of your performance in the class:

	Percentage Points
<b>Pre-lab and post-lab notebook</b>	20%
<b>Quizzes</b>	10%
<b>Literature Project</b>	10%
<b>Written Report Activities</b>	60%
<b>Total</b>	100%

Your course grade will be determined from your total course performance percentage as follows:

100% -	94.0%	A
93.9% -	90.0%	A-
89.9% -	87.0%	B+
86.9% -	84.0%	B
83.9% -	80.0%	B-
79.9% -	77.0%	C+
76.9% -	74.0%	C

73.9% -	70.0%	C-
69.9% -	60.0%	D
59.9% -	0%	E

All grades will be posted in the Canvas GradeBook, as available. There is no “curving” grades for the class.

UF's Grading Policy: <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

#### University Policy on Academic Misconduct

This class will operate under the policies of the student honor code which can be found at: <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>. The students, instructor, and TAs are honor-bound to comply with the Honors Pledge: **We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.** You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."* It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks. Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>.

## **Semester Schedule**

Weeks 1-4:

- Heat Capacity and the Speed of Sound
- Report Analysis and Safety
- Data Processing and Statistical Analysis
- Tabular and Graphical Interpretation of Data

Weeks 5-6:

- Conjugated Dyes and Absorption
- Particle in a Box Theory

Weeks 7-11:

- Review of Henderson-Hasselbalch Equation
- Equilibrium and  $pK_a$
- Shifting Equilibrium with surface charges

Weeks 12-13:

- Enzyme Kinetics
- Michaelis-Menten Theory

Weeks 13-14: Module 8: Analyzing Scientific Literature

**Disclaimer for this document**

**Note: All aspects of course operations, including grading, course policy and policy execution, are subject to change at the discretion of the course instructor.**

**If you have further questions, please contact me. Have a great semester!**

**Sincerely,  
Adam Mansell**