CHM2045L: GEN CHEM I LAB UF ONLINE

SUMMER A 2025; CLASS #: 15041

INSTRUCTOR INFORMATION

Instructor	Email	Phone	Office Hours
Dr. Korolev	Email in Canvas only korolev@ufl.edu	352-392-1087 (email preferred)	Virtual office hours M 1-3 PM EST

GRADUATE TEACHING ASSISTANT

TBA in the first week of the semester. TAs will have weekly virtual office hours throughout the semester.

GENERAL INFORMATION

REQUISITES

Detailed requisite information and credit suitability can be found in the Undergraduate Catalog.

COURSE FEES

Materials & Supplies Fee: $30.00

COURSE DELIVERY AND MEETING TIMES

This course is delivered in a hybrid format. Students complete pre-lab and post-lab work online at home. Students attend in-person labs on UF campus June 2 – June 6. In-person lab sessions meet twice a day, 9:30am-12:15pm and 2:00pm-4:45pm. All due dates and times are in EST. See due date schedule below.

DESCRIPTION/GOALS

As both a general education requirement and major's course, CHM2045L is designed to introduce you to common laboratory techniques and equipment used in the general chemistry laboratory, to help you gain understanding and proficiency in their use, and help you explore the process of doing experimental chemistry, and to illustrate representative examples of the useful and important concepts you are learning in the CHM2045 lecture.

By the end of this course, students will be able to apply the scientific method, to collect data and perform calculations, to create and analyze tables of data and graphs of various forms, and to analyze experimental error. Students will be able to refer to literature data and will acquire library skills. Students will be able to use a variety of laboratory glassware and equipment safely, and will be able to handle chemicals safely. Students will learn fundamentals of safety in an academic laboratory setting.

Specifically, students will be able to:

1. Safely handle, use and dispose of chemicals, identify chemical hazards and risks, and use databases to locate chemical safety information.

2. Apply the scientific method and demonstrate proper and safe use of lab equipment and proficiency in relevant techniques to conduct experiments, and to work effectively in small groups and teams.

3. Describe the importance of ethical and responsible conduct in a laboratory setting.

4. Design, construct, and interpret data tables and graphs accurately to communicate experimental findings.

5. Perform accurate and precise quantitative measurements, analyze data statistically and assess reliability of results.

6. Communicate scientific findings and demonstrate scientific reasoning effectively in written form

GENERAL EDUCATION OBJECTIVES AND LEARNING OUTCOMES

Primary General Education Designation: Physical Sciences (P) (area objectives available here)

A minimum grade of C is required for general education credit. Courses intended to satisfy the general education requirement cannot be taken S/U.

Physical science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the physical sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern physical systems. Students will formulate empirically-testable hypotheses derived from the study of physical processes, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.

The course objectives align with the UF General Education student learning outcomes and physical science area learning outcomes:

General Education SLO	Physical Science SLO	Course Objective Alignment	Assessment
Content	Identify, describe, and explain the basic concepts, theories and terminology of natural science and the scientific method; the major scientific discoveries and the impacts on society and the environment; and the relevant processes that govern biological and physical systems.	Objectives 1-6	All assessments offer opportunities for students to demonstrate content knowledge.
Critical Thinking	Formulate empirically-testable hypotheses derived from the study of physical processes or living things; apply logical reasoning skills effectively through scientific criticism and argument; and apply techniques of discovery and critical thinking effectively to solve	Objectives 1-6	All assessments offer opportunities for students to demonstrate critical thinking skills.

	scientific problems and to evaluate outcomes.		
Communication	Communicate scientific knowledge, thoughts, and reasoning clearly and effectively.	Objective 3-6	Pre- and post-lab notebooks, during-lab assignments, post-lab assignments.

A complete list of student learning outcomes and technical skills is posted in Canvas, organized by laboratory experiment.

LABS

Each week you may be asked to participate in a variety of activities including discussion board assignments, quizzes, graph creation, calculations, data analysis, etc. Introductory assignments are due the first week after Drop/Add – check Canvas for due dates. The pre-lab assignments for the in-person labs are due the second week of the course.

The in-person labs meet the week of June 2 - June 6. You are not permitted to enter the lab without proper safety attire, including approved eye protection. If you have familiarized yourself with the labs, you should be able to complete them within the lab period. If you have an unexcused absence for a lab, you will not be able to submit the post-lab assignments. Post-lab assignments are due two weeks after the labs.

REQUIRED MATERIALS

- All UF students are expected to have reliable access to a computer, especially for an online course. The computer must have an internet connection, webcam, microphone, and Excel. Computer must meet UF's computing requirements and meet Honorlock's system requirements: honorlock.com/support.
- You require a suitable laboratory notebook. Our recommendation is a standard composition notebook. Electronic devices are not suitable for notetaking.
- You are required to log in to Canvas while in the laboratory. UF requires use of DUO multi-factor authentication to do so. You must bring with you a device capable of and registered to enable DUO multi-factor authentication to each scheduled lab period. Information about DUO, including how to purchase a Token and how to generate up to 5 passcodes for future use, is posted here. For questions, contact the UFIT Help Desk.
- Department approved safety glasses/goggles, required for the first day of lab. These must be worn prior to entry and at all times while in lab. Suggestions are here: https://otl.chem.ufl.edu/safety-glasses/ .
- Proper attire:
    - Shirt: loose fitting, covers whole back, torso and abdomen with raised arms, sleeves cover shoulders
    - Pants: full length (no shorts, capris, cropped pants), no leggings, no holes/rips, skin should not be visible at ankle.
    - Shoes: close-toed and cover whole foot, no holes (i.e. not Crocs)

Safety is our priority. Anyone without the necessary safety glasses, or who is inappropriately attired, will not be allowed into the lab. No gum chewing or headphones are permitted. If you are asked to leave the lab due to improper attire, you will not be permitted a makeup. You can leave and return as long as you return within 15 min of the start of your lab period.

Your course will be in a lab environment where corrosive, flammable, liquid, and other hazards are present. Any personal items brought in the lab are subject to these hazardous conditions. The department is not liable for damages to personal items.

SAFETY

You are responsible for reviewing the safety information provided in Canvas. All of the activities worth credit for the course will be locked in Canvas until you satisfactorily complete the Safety Contract. In addition, there is a series of safety-focused assignments in the first week and within most of the lab activities. Together, the safety assignments are worth a dedicated portion of your course grade.

DUE DATE SCHEDULE (SUBJECT TO CHANGE)

THEME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
WEEK 1: ORIENTATION WEEK	May 12 No assignments due; drop/add	May 13 No assignments due; drop/add	May 14 Discussion: Introductions	May 15 Practice Quiz Netiquette Quiz Practice Assignment Syllabus Quiz	May 16 Safety Contract Safety Quiz 1 Safety Quiz 2 Safety Photo Pre-term Survey
WEEK 2: PRE-LAB ASSIGNMENTS DUE	May 19 Density Pre-Lab	May 20 Hydrates Pre-Lab	May 21 Stoichiometry Pre-Lab	May 22 Gases Pre-Lab	May 23 Calorimetry Pre-Lab
WEEK 3: PRE-LAB ASSIGNMENTS DUE	May 26 HOLIDAY	May 27 Electrolytes Pre-Lab	May 28 Lewis Structures Pre-Lab	May 29 Heating/Cooling Curves Pre-Lab	May 30 Beer's Law Pre-Lab Kinetics Pre-Lab
WEEK 4: IN PERSON LAB WEEK	June 2 Density Lab Hydrates Lab	June 3 Stoichiometry Lab Gases Lab	June 4 Calorimetry Lab Electrolytes Lab	June 5 Lewis Structures Lab Heating/Cooling Curves Lab	June 6 Beer's Law Lab Kinetics Lab

WEEK 5: POST-LAB ASSIGNMENTS DUE	June 9 Density Post-Lab Hydrates Post-Lab	June 10 Stoichiometry Post-Lab Gases Post-Lab	June 11 Calorimetry Post-Lab Electrolytes Post-Lab	June 12 Lewis Structures Post-Lab Heating/Cooling Curves Post-Lab	June 13 Beer's Law Post-Lab Kinetics Post-Lab
WEEK 6: FINISHING UP	June 16 STUDY FOR FINAL	June 17 STUDY FOR FINAL	June 18 FINAL LAB EXAM	June 19 HOLIDAY	June 20 GRADES SUBMITTED

ATTENDANCE INFORMATION

LAB PERIOD

You are expected to attend lab in person during your scheduled lab period, and to leave the laboratory prior to the end of your lab period. Everyone is given the same amount of time to complete the experiments. If you are well-prepared, you should not experience difficulties completing the experiments within the allotted timeframe. You may not arrive early, stay late, or attend during a different lab period to complete your laboratory activities. If you are more than 15 min late, you will not be allowed to enter lab and will forfeit attendance points for the day. Any student who has an unexcused absence is not allowed to submit any during-lab and post-lab assignments related to the missed lab period.

ABSENCES FOR IN-PERSON LABS

Requirements for class attendance in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/. Students who must miss lab due to extreme circumstances beyond their control must contact Dr. Korolev as soon as possible to discuss making up the missed lab in person.

Please understand that personal issues with scheduling conflicts, such as volunteering, work, non-emergency dentist or doctor appointments, extracurricular activities, exams for other courses, or travel, do not justify an excused absence. Any student who missed more than two lab sessions (excluding religious observances, disability related absences, or military leave), whether excused or unexcused, will receive a grade of E in the course.

GRADING

DEALINES AND LATE POLICY

For best performance on Quizzes, use only Firefox or Chrome for quizzes. Chrome must be used for the Lab Exam. Make sure you start well in advance of the due date/time, in case your computer's clock differs from official Canvas time. There are no extensions due to travel or computer issues. All dates/times are in EST.

For all assignment submissions, the late penalty is applied even if the submission is received one second past the deadline, so be mindful of time. The late penalty is quite strict; 1 s after the deadline is penalized as a full day late. Emailed assignments are not considered for grading. We highly recommend you submit assignments early and verify they've been submitted through Canvas. We recommend using computers to turn in work rather than apps on a student's phone. Verify all submissions. All due dates/times are in EST.

All assignments submitted through Canvas can be turned in late for reduced credit, -25% per day submitted late, with the exception of the Final Lab Exam. Extensions will not be given because of technical or personal issues that occur within 24 hours of the assignment deadline. For extensions due to illness/emergency, a Dean of Students note must be provided for at least the 2 days prior to the assignment's deadline for accommodations to be considered.

ASSIGNMENT DESCRIPTIONS/TIME COMMITMENT

Syllabus Quizzes are designed to assess your knowledge of the content of the course syllabus. The syllabus does contain a lot of information, and you can refer to the syllabus when needed.

Pre-Lab Quizzes are designed to assess your knowledge of the background information for each lab activity. Questions include multiple-choice questions of content and calculation based questions similar to those you will perform during or after the lab.

The **Pre-Lab Notebook** is designed to assess your preparedness for each lab activity and familiarity with the safety of chemicals used, knowledge of procedural steps, or readiness otherwise (calculations performed, data looked up in a reference, etc.).

Preparation/pre lab assignments typically involve <30 min of video instruction and 2-5 p reading and can all be completed within 90 min for students who have completed or are enrolled in the corequisite course (CHM2045 lecture).

During-Lab Assignments are generally of two types: a picture/photo of an experimental set-up or artifact from the lab, or a graph prepared while in lab. They are designed to ensure you complete tasks when instructed to do so, and while your TA is present to assist if needed (with a graph, for example). Each has a detailed grading rubric to guide preparation of your submission.

The **During-Lab Attendance Quiz** is due within the first 20 min of the scheduled lab period and must be completed in the lab from a lab workstation. The attendance quiz counts as part of the during-lab assignment grade category. If you fail to complete the quiz within the first 20 min you can complete it later during your lab period only, but will incur a late penalty of 25%.

Post-Lab Notebook assignments are .pdf scans of your laboratory notebook. You can write more than is required in the grading rubric for each but each lab has specific requirements, so refer to the grading rubrics each week. You will record observations, make calculations, you may write abbreviated procedural steps, discuss sources of error, and make tables of data and sketch experimental set-ups in your lab notebook.

Surveys may be part of educational studies or may ask you about specific aspects of the course or for an evaluation of your TA near the end of the semester.

Safety Quizzes are designed to assess knowledge of safety terms, pictograms, and other safety information we cover each week. Also included in the 'Safety' category is the **Safety Contract**, which is an acknowledgement of general safety considerations for the lab, specific safety information related to our

general chemistry lab, and familiarity with portions of the *American Chemical Society's Guidelines for Chemical Laboratory Safety* (a document is provided for you to review throughout the semester).

Other post-lab assignments may include Discussions or Assignments in Canvas. Each is associated with a specific lab activity and with specific lab-level student learning outcomes specified in Canvas.

During- and post-lab assignments are designed to be completed during the allotted lab period.

LAB EXAM

A final lab exam will be available over a 4 hour period, 6pm-10pm EST, on June 18th. The exam has a 2 hour time limit. The exam is a cumulative final exam that covers everything in the lab manual (the modules in Canvas). The final lab exam cannot be submitted late – it will be auto-submitted by 10pm on June 18th.

Exam absences will be handled in accordance with official UF academic regulations. For more information, see https://catalog.ufl.edu/UGRD/academic-regulations/ . See below for further clarification for two different types of situations.

(1) Conflicts with other events: this should be rare, as the final exam is during the registrar scheduled lab period. Such reasons may include religious holidays, military obligations, special curricular requirements (e.g., attending professional conferences), or participation in official UF-sanctioned activities such as athletic competitions, etc. For more information on such absences see the official UF Policy at https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext). If you must be absent for an exam due to a documented and approved conflict known in advance, you must e-mail your instructor (within Canvas) the documentation at least one week prior to the scheduled exam and an early conflict exam will be scheduled for you.

(2) Missing an exam due to an emergency or sudden illness: If you are absent for an exam due to an unpredicted documented medical reason or family emergency, you must contact the instructor as soon as possible, and you may be asked to have your excuse verified by the Dean of Students Office (DSO). Your instructor will follow UF academic regulations in evaluating the notification and/or documentation received from you or from the DSO on your behalf. Once your instructor is satisfied with the validity of your exam absence a make-up exam will be scheduled after a reasonable amount of time, i.e., before the end of the semester. If your documentation is deemed insufficient to excuse your absence you will receive a zero on the missed exam.

HONORLOCK

Honorlock will proctor your exams this semester. You do not need to create an Honorlock account, download software, or schedule an appointment for your exam. Honorlock is available 24/7 and requires a computer, webcam, microphone, and a stable internet connection.

To get started, you will need Google Chrome and to download the Honorlock Chrome Extension. You can download the extension at www.honorlock.com/extension/install.

When you are ready to test, log into Canvas, go to your course, and select your exam. Click "Take the Quiz" to begin the Honorlock authentication process, during which you will take a picture of yourself and show your ID. Honorlock will record your exam session and record your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device.

Honorlock support is available 24/7/365. If you encounter technical difficulties with Honorlock, contact Honorlock directly. You may live chat, phone (855-828-4004) and/or email support@honorlock.com. You should spend some time reading about their service and testing your system on their website at https://honorlock.com/support/. For other technical issues contact the Help Desk.

To help you prepare for an exam proctored by Honorlock, please read: https://dce.ufl.edu/media/dceufledu/pdfs/Honorlock-Student-Exam-Preparation-Information.pdf

A Honorlock student privacy guide is available at: https://honorlock.com/student-privacy-statement/

GRADE BREAKDOWN

Each laboratory exercise is comprised of a Pre-Lab quiz, a Pre-Lab notebook assignment, a Post-Lab Graph/Image, and a Post-Lab notebook assignment, and various other assignments specific to that lab. Each lab exercise as a whole is weighted equally to your final grade. Within each lab exercise, assignments are weighted according to the published point value. If there is any confusion about this, please contact the instructor. Detailed information regarding each of these grading items is provided in Canvas.

Assignment weights are as follows:

Assignment Group	Weight %
Syllabus/Surveys/Safety	10%
10 In-Person Labs (10 @ 7.0% each)	70%
Final Lab Exam	20%
Total	**100%**

Grade scale (note: there is no rounding to your score in Canvas):

Letter	A	A-	B+	B	B-	C+	C	D+	D	D-	E
Cutoff	93.0	90.0	86.0	83.0	80.0	76.0	70.0	66.0	63.0	60.0	<60.0

RE-GRADES

All Canvas lab assignment grades are graded by your TA so you should communicate any disputes directly to your TA via Canvas email. Your TA will address your concerns. Note that your assignments must be scanned and submitted to Canvas as a .pdf to the correct assignment in order for points to be considered towards your overall course grade.

Regrades of assignments submitted through Canvas, typically via file upload, must be requested within 3 days of a grade being assigned, and should be directed to your TA. If there was a technical issue with submission of the file, the file can be resubmitted to the comments section for a regrade but the assignment will suffer a 50% penalty. Technical issues are completely avoidable, as students can submit an assignment, verify it has been submitted correctly, and verify the contents of the file submission prior to the deadline. Do not use the mobile app to submit assignments.

UNIVERSITY POLICIES

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 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.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT

UF students are bound by The Honor Pledge which states "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. *See the UF Conduct Code website for more information.* If you have any questions or concerns, please consult with the instructor or TAs in this class.

U MATTER, WE CARE

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing Staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

INCLUSIVE LEARNING ENVIRONMENT

We embrace the University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinion or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." We are committed to fostering an open and inclusive classroom and laboratory environment in our College, where every student, guest instructor and contributor feels valued. If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office on Multicultural & Diversity Affairs
Website: http://www.multicultural.ufl.edu/

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/.

NETIQUETTE

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. Review the detailed information regarding Netiquette in Canvas. Make sure you complete the Netiquette Quiz, which counts towards your survey/syllabus/safety grade.

GETTING HELP

For issues with or technical difficulties with Canvas, contact the UF Help Desk: https://helpdesk.ufl.edu/ ; (352)-392-HELP.

Other resources are available at http://www.distance.ufl.edu/getting-help for Counseling and Wellness resources, disability resources, resources for handling student concerns and complaints, and library desk support.

DISCLAIMER

This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

SAMPLE GRADING RUBRICS

Pre-Lab Notebook (sample)

Density Pre-Lab Notebook

Criteria	Ratings			Pts
Basic Information	**1 pts** **Full Marks** The student labels a page with the name of the experiment, the date performed, and the notebook page number.		**0 pts** **No Marks** The student does not provide the required information in full.	1 pts
Materials List	**2 pts** **Full Marks** The student provides a complete list of materials for the lab according to the video.	**1 pts** **Partial Marks** The student omits 1-2 items from the materials list.	**0 pts** **No Marks** The student does not provide a complete materials list.	2 pts
Standard Densities	**2 pts** **Full Marks** The student records density values for all 5 metals required, using the CRC Handbook.	**1 pts** **Partial Marks** The student omits 1 standard density value.	**0 pts** **No Marks** The student omits two or more density values, does not provide units, or the data is erroneous.	2 pts
				Total Points: 5

TA Recorded Attendance

In-Lab Attendance

Criteria	Ratings		Pts
Student Presence in Lab	**1 pts** **Present** Student present in lab.	**0 pts** **Absent** Student not present in lab.	1 pts
			Total Points: 1

Post-Lab Notebook (Sample)

Density Post-Lab Notebook

Criteria	Ratings			Pts
Solid Metal	**2 pts** **Full Marks** The student shows full calculations of density and % error of the solid metal.		**0 pts** **No Marks**	2 pts
Standard Solutions	**2 pts** **Full Marks** Student shows calculations for the density of the standard solutions.		**0 pts** **No Marks**	2 pts
Unknown Solution	**2 pts** **Full Marks** Student shows calculations of the density and average density for all three portions of the unknown solution. Student calculates the mass % of the unknown solution and calculates the % error.		**0 pts** **No Marks**	2 pts
Sources of Error	**2 pts** **Full Marks** Student discusses 3 relevant sources of error and categorizes as random or systematic.	**1 pts** **Part Marks** Student includes only 2 sources of error and categorizes as random or systematic.	**0 pts** **No Marks**	2 pts
Impact of Errors	**2 pts** **Full Marks** The student describes how all 3 sources of error would impact experimental results and proposes ways to minimize them.	**1 pts** **Part Marks** The student explains affect and how to minimize two of their sources of error.	**0 pts** **No Marks**	2 pts
Table of Group Data	**2 pts** **Full Marks** Student includes table of group data (at least 6 entries) for unknown solution.	**1 pts** **Part Marks** Student tabulates only 4-5 entries.	**0 pts** **No Marks**	2 pts
Std Deviation	**2 pts** **Full Marks** Student calculates mean, range, and standard deviation of group data.	**1 pts** **Part Marks** Student calculates two of the three values.	**0 pts** **No Marks**	2 pts
Accuracy and Precision	**1 pts** **Full Marks** Student discusses accuracy and precision of single data point vs pooled data.		**0 pts** **No Marks**	1 pts
				Total Points: 15