General Chemistry Laboratory
CHEM 01LA
Winter 2021

GENERAL DESCRIPTION

General Chemistry Laboratory CHEM 01LA consists of one three-hour laboratory period per week comprised of activities related to the topics covered in CHEM 001A lecture. An outline of course learning objectives is posted under "Course Materials" on iLearn.

All lab periods will be held remotely via Zoom. Please refer to the announcement posted on iLearn for the link to the Zoom meetings for your lab section.

INSTRUCTIONAL PERSONNEL

The lab section is conducted by your Teaching Assistant (TA). Please check the "Faculty Information" section on iLearn for the contact information for your TA and other instructional personnel.

Your TA will hold office hours each week (via Zoom; the specific link for office hours will be posted on iLearn).

Dr. Kevin Simpson is the coordinator for CHEM 01LA. Please contact Dr. Simpson regarding enrollment, absences, and other matters that may be referred to him by your TA. He can be reached at kevin.simpson@ucr.edu.

Prof. Leonard Mueller (leonard.mueller@ucr.edu) is the faculty supervisor and department chairperson.

REQUIRED COURSE MATERIALS FOR CHEM 01LA LABORATORY

1. Laboratory Manual: CHEM 1LA Laboratory Manual, Fall 2020 Edition, (Hayden-McNeil Publishing, ISBN: 8220119504318). This is available as a PDF e-book from the UCR Bookstore (https://ucr.bncollege.com).
2. Lab Notebook. You will need a dedicated notebook for recording the data and observations you make during each lab. It can be a standard notepad, but the pages should be consecutively numbered.
3. A standard scientific hand calculator with exponential and logarithm functions (such as the TI-30X-IIS).
4. A printer for completing the Prelab and Report assignments. You may also use a suitable app on a tablet device to digitally write on the lab manual assignment pages. If you do not have access to either of these, please inform your TA so that we can provide instructions for an alternate method.
5. A scanner or scanning app for submitting assignments.

Chemistry 01LA Laboratory Schedule
Winter 2021

Week	Dates	Experiment	Manual Pages	Lecture Text*
1	Jan. 5 – 8	Introduction; Practice Assignments (under "Assignments" in iLearn)	v-ix; 77-88	—
2	Jan. 12 – 15	*Experiment 1 – Measurements Part I: Density of a Liquid*; Quiz #1	1-10; 89-95; 99-102	Chapter 1
3	Jan. 19 – 22	*Experiment 2 – Emission of Light from Hydrogen and Metal Atoms*; Quiz #2	11-22 103-104	Chapters 2, 3
4	Jan. 26 – 29	*Experiment 3 – Measurements Part II: Density of a Solid*; Quiz #3; Library Module: CRC Handbook of Chemistry and Physics is due by 5:00 p.m. Monday, February 1 (under "Assignments" in iLearn)	23-28	Chapter 1
5	Feb. 2 – 5	*Experiment 4 – Paper Chromatography*; Quiz #4	29-38	Chapter 1
6	Feb. 9 – 12	*Experiment 5 – Using Models to Predict Molecular Shapes*; Quiz #5	39-52	Chapters 1.6, 4, 5
7	Feb. 16 – 19	*Experiment 6 – Water of Hydration*; Quiz #6	53-62 89-90	Chapters 2, 6
8	Feb. 23 – 26	*Experiment 7 – Beer's Law*; Quiz #7; Report due 48 hours following lab period	63-76 97-98 107-110	Chapters 2, 8.1-8.2
9	Mar. 4 – 5 Thurs, Fri sections	Thursday, Friday sections only: Review for Final Exam; Scores for Expt. #6 and #7 will be posted on iLearn; no labs for Mon, Tues sections	v-ix; 1-109	—
10	Mar. 9 – 10 Tues, Wed sections	Tuesday, Wednesday sections only: Review for Final Exam; Scores for Expt. #6 and #7 will be posted on iLearn; no labs for Thurs, Fri sections	v-ix; 1-109	—
		Comprehensive Laboratory Final Exam Friday, March 12, 6:00-6:50 pm		

* CHEM 001A lecture textbook chapters (*Chemistry: An Atoms-Focused Approach*, 3rd Edition by Gilbert et al) corresponding to topics covered in the lab experiments

LABORATORY POLICIES

Grading. Grading will be based on 7 lab experiments plus two practice assignments and a final exam. The following assignments are to be completed for each experiment. The point value for each assignment is given with the total for the 7 labs in parentheses.

4 points	(28)	*Prelab*; with the answers and calculation steps written directly on the Prelab sheets printed from the lab manual
1 point	(7)	*Purpose* and experimental *Procedure* (in outline form)
1 point	(7)	*Data* and observations (recorded in the lab notebook)
12 points	(84)	*Report*; with the answers and calculation steps written directly on the Report sheets printed from the lab manual
2 points	(14)	*Results and Conclusion* section (written in the lab notebook and included with the Report)
8 points	(56)	*Quiz*; given at the beginning of each period, the quiz covers material related to the current and all previous experiments; Note that you will have 12 minutes to complete the quiz
4 points		Practice Assignments (2 points each)
50 points		Comprehensive Final Exam (Friday, March 12)
Total: 250 points		

To be considered satisfactory, your work for each experiment must include all of the above listed components. You must show all relevant calculations with the Prelabs and Reports to receive credit. You must have a complete experimental procedure in your notebook in order to attend the lab session. *You must submit the Data page(s) from your notebook at the end of the period in order to receive any credit for the experiment.* ***Note: you have until the next lab period following the posting of a score to bring any grading errors to the attention of your TA, after which time no changes to scores will be made.***

An additional assignment, Library Module: CRC Handbook of Chemistry and Physics is required to complete Report 3. It is due by 5:00 p.m. on Monday, February 1 (in iLearn) and is worth 2 bonus points.

Your course grade will be based on your total points (out of 250 possible), computed according to the following scale:

Minimum score for A:	230 points
Minimum score for B:	210 points
Minimum score for C:	185 points
Minimum score for D:	140 points

A grade of C- is required to continue to CHEM 001B/01LB and many other science courses. The minimum score for a C- is 155 points. The other plus/minus letter grades will be determined after an analysis of all scores. A score of less than 125 points or two unexcused absences (regardless of total points) will result in a grade of "F".

To ensure that all sections are graded as uniformly as possible, a positive or negative adjustment may be made to the total scores when there are significant grading differences between TAs. In such cases, the course grade will be determined by the same scale as above, after the adjustment has been included in the total score.

What is required to be included in the notebook for each experiment?

For each experiment you must include the following four sections in laboratory notebook. You will scan (saved in PDF format) each section and submit it in iLearn (located under "Assignments").

1. Purpose
2. Procedure (in outline form)
3. Data (measurements and observations recorded in your lab notebook)
4. Results and Conclusion; this section includes these two components:
   a. Error Analysis
   b. Conclusion

Below is an explanation of what needs to be included for each assignment.

1. Purpose - the purpose of the experiment should a succinct statement of the main point of the lab. It should not be more than 2-3 sentences long.

2. Procedure - a step-by-step procedure in outline form. The procedure must be in your own words (not copied verbatim from the lab manual). You do not need to write complete sentences. The outline be should as concise as possible, but include all the details necessary to carry out the experiment. It must also include a list of the chemicals and equipment you will be using, any relevant chemical reactions, sketches of equipment, and safety precautions to follow. Refer to the example on pages 80-81 in the lab manual.

   Submit a scan (PDF format) of the notebook page(s) containing the Purpose and Procedure in iLearn prior to the beginning of the period.

3. Data – Begin a new page and record all your measurements and observations in a table format (see example on page 82 in the lab manual) and underneath the table write any observations or comments pertaining to the experiment. Use the whole page for this. You might find it useful to set up the data table before coming to lab. Do not include calculated values in the Data section. At the conclusion of each lab period you must submit a scan (PDF format) of the data page(s) in iLearn.

4. Results and Conclusion. This section is submitted in iLearn with the Report and must include following components.

   a. Error Analysis - If the final results were not what was expected, then use this section to describe what went wrong and to give any possible sources of error. For example, suppose that three titrations to determine the molarity of an acid solution were performed and one of the titrations resulted in a value of the molarity significantly different than the other two. If you noticed halfway through one titration that there was an air bubble in the tip of the buret, you would discuss what effect this might have on the accuracy of your results.

b. Conclusion - In no more than 3 to 5 coherent sentences state your final conclusions of the lab **BASED on the experimental results.** Most importantly you want to relate the results that were obtained back to the original purpose of the experiment. For example, if the purpose of the experiment was to determine the concentration of a base by titration with an acid, your conclusion should state the average concentration of base, and assess the precision of the results by providing the standard deviation of your trials. Moreover, in your conclusion you should present one or two new ideas that were learned by doing the experiment. This section should be written concisely and in the third person.

Refer to Appendix A (p. 77-82) and Appendix B (p. 83-84) of the lab manual for additional information about the laboratory notebook and preparation for laboratory. The table on page 84 summarizes the various components of a complete experiment, and when each assignment is due.

5. Calculations – in the space provided on the Prelab and Report pages, include the detailed examples of all the important calculations leading to the final results of the experiment. If you did multiple trials, you only need to show the step-by-step calculations of the first trial. Keep in mind that in some instances you will be asked by the TA to show sample calculations of all the trials. If you need extra space in which to show your calculations, you may include additional pages with your Report sheets. The calculations must be handwritten.

Late Assignments. All laboratory assignments (*Prelab Exercise*, *Purpose & Procedure*, and *Laboratory Report/Conclusion*) are due before the start time of the lab period. Late assignments will not be graded.

Attendance. You are expected to attend all your scheduled lab Zoom sessions. Generally, a missed lab session cannot be made up. However, if you must miss a lab period due to verifiable illness or other legitimate reasons, you must contact Dr. Simpson (kevin.simpson@ucr.edu) within 12 hours to make arrangements for making up the quiz and turning in assignments. You must provide a acceptable written documentation such as a physician's note or jury duty summons. *NOTE: a maximum of one absence from lab may be excused during the session. Two or more unexcused absences will result in a grade of "F", regardless of the total number of points you have accumulated.*

Academic Conduct. Cheating will not be tolerated. Cheating in any part of the course will generally result in an "F" in the course as a whole (not just zero for that assignment) for each student involved. Also, the instructor will withhold the grade in the course and report the student's unacceptable conduct to the campus administration for disciplinary action. In general, cheating means you have submitted work for point credit that is not your own. Examples include: copying, plagiarizing, use of "cheat sheets", accessing the internet or texting someone for information during a quiz or exam, having another person take a quiz or exam for you, and turning in a report without having attended the Zoom session in which the lab was performed. Changing graded work and submitting it for re-grading or aiding someone else to cheat is also cheating.

Make sure you are familiar with the campus Academic Integrity Policies & Procedures (http://conduct.ucr.edu/policies/academicintegrity.html).

Course Website (iLearn). All assignments are submitted via the course website at http://ilearn.ucr.edu.You are expected to check this site frequently for important announcements and course materials. Your lab scores and final grade will also be posted on iLearn.

Accommodations for Students with Disabilities. UC Riverside is committed to providing equal access to learning opportunities to students with documented disabilities, including medical conditions (i.e., pregnancy, asthma, diabetes). To ensure access to this class, and your program, please contact the Student Disability Resource Center (SDRC) to engage in a confidential conversation about the process for requesting accommodations. More information can be found on https://sdrc.ucr.edu/. If you are a student registered with the SDRC, please ensure you request your quarterly accommodations through http://rability.ucr.edu.

Laboratory Safety. Although you will not be directly performing the experiments, you should keep laboratory safety in mind as you observe the TA working in the lab. You may be asked to identify the hazards associated with each experiment and suggest the proper procedures to follow. Refer to the section on laboratory safety in the lab manual.