

CHM 114: General Chemistry II Laboratory (Laboratory for CHM 112)
Fall Semester 2020
Course Syllabus

Laboratory Director

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Office Hours: available via URI's Starfish Success Net

Office hours for Fall 2020 will be held via zoom

Laboratory Instructors

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Required Laboratory Materials

- CHM 114 lab handouts will be provided through a link in the course Brightspace site. You will need to print the lab handouts and bring them with you for each in-person experiment.
- RAM account and ID card, (required for purchases at the CHM Stockroom, Room 180)
- Safety glasses, knee-length lab coat, & nitrile gloves (available for purchase at the Stockroom*)
- A scientific calculator with log and exponent functions
 - * Note that safety equipment can also be purchased off-campus but must be approved by the Stockroom before being used in lab.

Important Fall 2020 Semester Deadlines:

- Wednesday Sept. 30th: last day to drop courses with no transcript designation of "W"
- Monday Oct. 12th: Columbus Day, classes DO meet
- Wednesday Oct. 21st: last day for students to drop courses; dropping a course after this date will require the permission of your academic dean.
- Tuesday Nov. 3rd: Election day, classes DO NOT meet
- Wednesday Nov. 11th: Veteran's Day, classes DO NOT meet
- Wednesday Nov. 25th: Last day of face-to-face classes, last day of CHM 114 labs
- Monday Dec. 14th: last day of classes. Any late assignments must be submitted by this date to receive credit (reduced by 10% per day late)

Course Policies

Required Materials:

Safety Equipment

Safety glasses, a lab coat, and shoes that completely enclose your feet are required for each experiment, and nitrile gloves are required for most experiments. If you do not have the proper safety equipment or are wearing improper footwear, you will be asked to leave the lab and may not return until properly dressed. **Being asked to leave lab for non-compliance with safety policies may result in loss of credit for that experiment.** Safety glasses and lab coat must be put on before entering the lab and cannot be removed until after you have exited the lab room.

For the Fall 2020 semester, disposable masks and gloves will be provided to each student at the start of each in-person lab. The disposable masks must be worn while the student is in the lab and should be disposed of when the student leaves the lab. Each student should make sure to have their own face covering to wear to and from lab.

Medical Information Form

Each student should make sure to have their medical information form in their lab coat pocket during each lab. This form will be provided to medical personnel in the event of an emergency.

Lab Handouts

You must print and bring the lab handout for each in-person experiment (available through a link in the course Brightspace page) with you to lab. These handouts will contain the worksheets that you will need to perform each experiment.

Calculator and Black or Blue Pen

You will need a calculator and a black or blue pen for the lab for recording and analyzing data. You will not be allowed to share a calculator, so be sure to bring your own. **You cannot use a cell phone as a calculator.**

URI Email and Brightspace

Brightspace will be used to post grades and other important information, which may be sent as an email to each student's URI email account. It is the student's responsibility to monitor both Brightspace and their URI email for important announcements and grading information. You will need to opt in to receiving notifications via email on Brightspace.

TA and General Lab Information:

TA Contact Information

Each TA is assigned a uri.edu email address by the University. Your TA's email can be found on the course Brightspace site and at the beginning of this syllabus. Email is the best way to contact your TA. Your TA should respond back within 24 hours to any email sent between 5:00pm on Sunday and 8:00am on Friday. TAs are not required to respond to any emails on weekends. **If, during the work week, your TA does not respond within 24 hours of sending your email, please email the lab director immediately to ensure that your concerns are addressed as soon as possible.**

General Lab Organization

There will be modifications to the labs this semester to accommodate the need to reduce the number of students in the lab rooms as a result of COVID-19. Each lab section will be divided into two groups of students, Group A and Group B. Group A will attend lab and perform the first in-person experiment (Lab 1: Density) the week of 9/14 – 9/18. Group B will perform the first online activity (Lab Math) the week of 9/14 – 9/18. The second week (9/21 – 9/25), Group B will attend lab to perform the in-person Density experiment, and Group A will perform the online Lab Math activity. Students will then attend an in-person lab every other week, and conduct an online activity the weeks they do not attend an in-person lab. The complete schedule can be found at the end of this syllabus – please note that the schedule is impacted by election day and Veteran's Day, on which there are no classes. Lab will end when in-person classes end the day before

Thanksgiving. There will be 5 in-person experiments and 5 online activities. Students will be graded on 4 out of 5 in-person experiments and 4 out of 5 online activities, which will allow each student one absence without penalty.

The first 15 minutes of lab will be designated as the “arrival time”. Students should arrive at lab during this time period (8:00–8:15am, 11:00–11:15am, or 2:00–2:15pm depending on the lab section), put on their PPE, enter the lab room, and go directly to their designated workstation. Each student will be provided with a pair of nitrile gloves and a disposable mask at the beginning of each in-person lab. The gloves and disposable mask must be worn while the student is in lab, and must be disposed of when the student leaves lab at the end of the experiment. Due to the potential for chemical contamination, students will not be able to wear re-useable face masks during lab (this is why the disposable masks will be provided) but must have their own masks with them to be work to and from the lab as required by University policies.

Upon entering the lab, students must check their equipment drawers to ensure that all items are present and in good condition. At half past the hour, the TA will begin the pre-lab talk, which will cover important information about the day’s experiment. You can ask your TA any questions you like about this material during your lab so that you have a good understanding of it before completing and submitting the associated lab assignments. Some of the material needed for lab will not have been covered in the lecture yet, so make sure to ask questions if you have any. Lab provides an opportunity for you to get more individualized attention than can be provided in a large lecture.

Finally, you will perform the lab experiment. At this time, your TA is available to help you set up equipment and answer any questions pertaining to the current experiment.

TA Office Hours

All Chemistry Department teaching assistants spend one hour a week holding office hours. For this semester, all office hours will be held via zoom. The address for general chemistry office hour help will be posted on Brightspace. A link to the schedule will be posted on Brightspace as soon as it is available. If you need help with background information, performing the lab calculations, or the material covered in lecture, you can contact any TA teaching your course during their office hour slot via zoom. If you have a question regarding something specific to your lab section or grading, then you should consult your own TA, but any CHM114 TA can answer general questions on the experiment or the lecture material.

Grading and absences:

Grading

- Grades in CHM 114 are **earned** by demonstrating mastery/proficiency in the required skills; these skills include not only chemistry laboratory techniques, but also problem-solving, critical thinking, and the ability to apply course concepts within relevant laboratory scenarios. **To be clear:** Each student’s grade is determined by the **quality** of that student’s performance on the CHM 114 work items. The grade is *not* open to negotiation, and it is *not* dictated by what is needed to progress in the student’s chosen program of study. The grade must be **earned** by achieving **proficiency in** (and ideally **mastery of**) the skills identified as essential to ongoing success in the student’s degree program.
- **The teaching assistant assigned to your section does all the grading for the course.** Contact your TA immediately if you have a problem with the grading of your work. If the problem does not get resolved through your TA, contact the lab director immediately. Check the Brightspace site each week to make sure that the grades on Brightspace match your graded work. **No changes in grades will be made if the problem is not addressed within one week of receiving your grade via Brightspace.**
- **Do not compare the grading on your work to that of a student with a different TA.** All teaching assistants grade slightly differently. At the end of the semester, the laboratory director evaluates the grades of each TA and will assign a scale (if **necessary**) to each section to assure that the overall letter grades of the teaching assistants are fair. A strict TA with

lower grades overall will have a scale, while a more lenient TA likely will not. For example, one student that receives a B+ in the course may have an 87 average with a lenient TA and a student with a different TA may still get a B+ but may only need an 83 average. The initial basis for all grading is the standard grade scale: A-/A 90-100; B-/B/B+ 80-89; C-/C/C+ 70-79; D/D+ 60-69; F <60.

- **Students should be aware that CHM 114 and CHM 112 are separate courses.** The lab is intended to complement the lecture by illustrating many of the lecture concepts; however, **the timing of these concepts may not be perfectly synchronized with the lecture presentation.** This is especially true for this semester, since lab is ending at Thanksgiving. The lab may also include additional topics that are not covered in lecture. For this reason, each of the experiments in the lab manual is written as a complete lesson which provides all of the information needed to complete the experiment and do well on the associated work items.
- **All work this semester will be submitted through Brightspace. You should see your grade in the Brightspace gradebook no later than a week past the submission deadline.** If you do not receive your grades in a timely manner, please notify the lab director immediately.
- **The TA cannot review any graded work at any time during the lab,** so if you have questions regarding anything but the current experiment, please email your TA to discuss your concerns. TAs from other sections will not be able to answer your questions about grading, so **all grading concerns should be discussed with your own TA or the lab director.**

Incomplete Policy

- Incomplete grades cannot be assigned except in the case of a real emergency. Any grade of incomplete must be approved by the department chair and the dean. In order to receive an incomplete, a student's **coursework must have been passing** and the student **must have completed at least half of the coursework for the semester.** Students receiving a grade of Incomplete should make necessary arrangements with the lab director to complete the work prior to the following midsemester. **If an incomplete is not made up prior to the two year grade change deadline established by the University, the "I" will be replaced with a grade calculated for the student based on the work completed and including zeroes for any work not completed.**

Late to lab

If you arrive to lab more than 30 minutes late, after the class has begun the experiment, you will not be allowed to perform the lab for that day and will have to use that experiment as the one that is not counted toward your course grade.

Missed Labs & Make-up Policy

- Since it will not be possible to offer a make-up lab this semester, course grades will be based on four out of five experiments and four out of five online activities. This policy will allow each student one absence without penalty.
- If you miss more than one in-person experiment or online activity, **and you have official documentation (e.g. notice from the Dean of Students office, a doctor's note on professional letterhead, etc.), you must contact the lab directly as soon as possible to discuss options for making up the missed work.** The documentation must include the date you missed the lab. Notes from parents, house mothers, etc. are not acceptable documentation.
- **University Authorized Absences:** If you know that you will be missing a lab for a University sponsored event such as a sporting event or conference, or for a religious holiday, you must contact the lab director at least 1 week in advance to work out details for making up the lab during the week that the chemicals are available. No makeup will be allowed if the lab director is not given at least 1 weeks' notice of a scheduled university authorized absence. For University sponsored events, you must also be able to provide verification that the absence is

authorized by the University (e.g. an athletics schedule and proof of team membership). If you have a sports schedule that may result in missing more than one lab, please see the lab director to determine if there is an alternative lab session that you can attend in case you miss your own lab.

Point Distribution

Breakdown of course grade

	Points	Percent of grade
Prelabs	20 points	20%
Informal lab reports	100 points	40%
Online activities	100 points	40%
Total:		100%

Pre-lab Assignments (20pts each)

There is a pre-lab assignment required before every experiment. It must be submitted through Brightspace **BEFORE THE START OF YOUR LAB SESSION**. Pre-lab assignments submitted after the start of your lab session will not be accepted, and will receive a grade of zero. The purpose of the pre-lab assignment is to be sure that you have read the lab thoroughly, understand the general concepts behind the lab, know the safety precautions, and can perform the calculations given in the experiment. If you have any questions on any of the material in the experiment, use the zoom office hours to get help from a TA before your lab meets. Since the online activities do not have the same safety considerations, they do not include pre-lab assignments.

Informal lab reports & online activities (100pts total)

The informal lab report includes the experimental procedures and data, the results table(s) that you generate from the calculations section of the experiment, and the calculations and related questions contained in the lab handout. Most of the online activities will ask you to generate and process data, and will therefore be graded in the same manner as the information lab reports. You will use the data and results table(s) from the experiment/activity to complete the required calculations and questions. **All three sections (procedures, data & results, and calculations/questions) must be submitted as a single pdf file through Brightspace.** Informal lab reports and online activities are due at 11:59pm one week after your scheduled lab meeting time (e.g. if you are in a Wednesday section, your informal report will be due at 11:59pm the Wednesday after your lab section meets to conduct the in-person experiment). **Informal reports and online activities submitted after the due date will receive a 10 point per day reduction in credit.** Please refer to the course introduction module for information on how to convert your files into a single pdf document, and free apps that are available for this purpose. A grading rubric is included with the procedures & data and results sections of the report so you know exactly where you lost points. Points for the calculations and questions will depend on the material covered in the experiment/activity. The work items should be graded clearly so you know exactly where and why you lost points. If you do not understand where and why you lost points, make sure to contact your TA for clarification. If are still unclear about your grade after contacting your TA, please contact the lab director.

Experimental procedures and data (20pts)

This section contains the work that was done during your lab time/time you worked with a simulation. Be sure to use correct significant figures and units on all values. Complete all the sections carefully since you will use this data to complete the associated calculations and questions. Have your TA sign the data when you are finished so that you get credit for attending the lab. **A lab technique grade will be incorporated into this section.** If any unsafe or unprofessional behavior is observed by your TA, chemistry faculty, or a member of the stockroom staff, lab technique points will be deducted from your grade. In addition, if your lab space or lab equipment is not completely clean and ready for the next person to use, you will lose lab technique points.

Results table (20pts)

The results table must be filled in using correct significant figures and units. See a TA during zoom office hours if you have any questions on any of the calculations.

Calculations & Questions (60pts)

You will use the results of your experiment/activity to complete the calculations and questions associated with the experiment. Numbers used in calculations and answers to questions must be consistent with the data you obtained in lab/with the simulation. **Questions will cover the background information contained in the lab manual as well as the procedure and calculations. Safety information and department and course policies may also be included.**

Departmental Policies

Safety Training

You must complete all required safety training before performing any experiments. You may be asked about safety information at any time throughout the semester.

Medical Information Form

The medical information form provides vital information to medical personnel if you are unconscious or incapacitated. You will never be asked to show the information on this form to your TA or other students at any time during the semester, so please note any information that will be needed in an emergency. Always bring this form with you to lab. If you forget your form, make sure to fill out a new form before you start the experiment.

Injuries, Illness or Under the Influence

If you are injured or become ill during the lab, you can leave the lab without penalty. You will then need to discuss make-up options with the lab director. If you enter your lab under the influence of drugs or alcohol, your TA has the obligation to immediately remove you from the lab without a make-up option).

Use of a Cell Phone in Lab

Unless there is an emergency in the lab, cell phone use is not permitted. **Cell phones must be turned off when in lab and placed in the cubby with your other possessions. Use of cell phones for non-emergency communications, social media, etc. will result in a loss of performance points. Continued use of a cell phone after being asked to stop may result in your being asked to leave lab, in which case you will receive a zero for the entire informal report for that experiment.** If a personal emergency makes it absolutely essential that you take a call, remove your gloves and step out into the hallway for the duration of the call. You are responsible for any information that you miss and for completing all work prior to the end of lab.

Stockroom Policies

If any equipment you use in lab is broken or missing by the end of the lab period, you are responsible for the cost of the equipment and will be issued a lab bill. **This includes equipment from your drawer that is determined to be missing or broken at the start of the following lab period. Make sure to verify that all equipment is present and undamaged at the start of each lab, and that all equipment has been returned to your drawer before leaving lab!** All replacement items and bills are processed through the Chemistry Department Stockroom. **Your TA and the lab director cannot change or remove a lab bill, so all billing questions must be addressed directly through the Stockroom.** All transactions must be via RAM account or personal check, not cash. Stockroom policies and hours may be found on the department website, www.chm.uri.edu under the "for current students" tab in the Stockroom section.

Plagiarism

Any signs of plagiarism, (identical or near identical information from another source), will be taken very seriously. If plagiarism is suspected on any graded work, you may receive a zero for the submitted material. Make sure that all submitted material is your own work. **A second instance of plagiarism will be reported through the appropriate channels and handled on a university level. Any suspected incidences of plagiarism will be dealt with very severely.** See the departmental plagiarism policy at the end of this document for more detailed information.

The following are some examples of academic dishonesty seen in undergraduate chemistry labs:

- Answers on pre-lab assignments, etc. are identical, or nearly identical, to those of another student. Even just one identical answer is considered academic dishonesty. While it is acceptable to discuss lab information, each student should then work alone to answer all questions independently and in their own words.
- Having another student's completed, or partially completed, manual in your possession, or using such a manual to assist you in answering questions on your own lab work items.
- Having another student's quiz(s), pre-lab assignment(s), or report sheet(s) in your possession, or using these items to help you answer questions on your lab work items. This includes items from previous semesters.
- Unauthorized communication during concept reviews, copying from another student's concept review, using unauthorized information from your lab manual or another resource during a concept review.
- Altering or attempting to alter grades.
- Changing data to match expected results or results obtained by another student.
- Providing materials for another student to copy from.

University COVID syllabus statement

The University is committed to delivering its educational mission while protecting the health and safety of our students. At this uncertain time, those concerns include minimizing the potential spread of COVID-19 within our community. While the university has worked this summer to create a healthy learning environment for all, it is up to all of us to ensure our campus stays that way.

As members of the URI community, students are required to comply with standards of conduct and take precautions to keep themselves and others safe. Students are required to comply with Rhode Island state laws, including the Rhode Island Executive Orders related to health and safety, ordinances, regulations, and guidance adopted by the University as it relates to public health crises, such as COVID-19.

[An addendum on policies and guidelines concerning your obligations](#) during this crisis has recently been integrated into the Student Handbook. These obligations include:

- Wearing of face masks by all community members when on a URI campus in the presence of others
- Maintaining physical distancing of at least six feet at all times
- Following state rules on the number of individuals allowed in a group gathering
- Completing a [daily health self-assessment](#) also available through the [Rhody Connect](#) app before coming to campus
- Submitting to COVID-19 testing as the University monitors the health of our community
- Following the University's quarantine and isolation requirements

If you answer yes to any of the questions on the daily health assessment, do not come to class.

YOU MUST STAY HOME/IN YOUR ROOM and notify URI Health Services via phone at 401-874-2246 immediately.

If you are already on campus and start to feel ill, you need to remove yourself from the public and notify URI Health Services via phone immediately at 401-874-2246 and go home/back to your room and self-isolate while you await direction from Health Services.

If you are unable to attend class, please notify your TA. If the requirement that you are unable to attend class will cause you to miss more than one in-person experiment, please also contact the lab director at madon@uri.edu. We will work together to ensure that course instruction and work is completed for the semester.

Anti-Bias Statement:

We respect the rights and dignity of each individual and group. We reject prejudice and intolerance, and we work to understand differences. We believe that equity and inclusion are critical components for campus community members to thrive. If you are a target or a witness

of a bias incident, you are encouraged to submit a report to the URI Bias Response Team at www.uri.edu/brt. There you will also find people and resources to help.

Disability Services for Students Statement:

Your access in this course is important. Please send me your Disability Services for Students (DSS) accommodation letter early in the semester so that we have adequate time to discuss and arrange your approved academic accommodations. If you have not yet established services through DSS, please contact them to engage in a confidential conversation about the process for requesting reasonable accommodations in the classroom. DSS can be reached by calling: 401-874-2098, visiting: web.uri.edu/disability, or emailing: dss@etal.uri.edu. We are available to meet with students enrolled in Kingston as well as Providence courses.

Academic Enhancement Center:

Located in Roosevelt Hall, the AEC offers free face to face and web-based services to undergraduate students seeking academic support. Peer tutoring is available for STEM-related courses through drop-in centers and small group tutoring. The Writing Center offers peer tutoring focused on supporting undergraduate writers at any stage of a writing assignment. The UCS160 course and academic skills consultations offer students strategies and activities aimed at improving their studying and test-taking skills. Complete details about each of these programs, up-to-date schedules, contact information and self-service study resources are all available on the AEC website, web.uri.edu/aec.

Departmental Plagiarism Policy

One of our goals in this course is to reinforce the importance of scientific integrity. In recent years, there have been numerous examples of established scientists generating falsified data or copying material from another source. Acts of plagiarism both damage science and can have important impacts on society. The possibly falsified data associated with the connection between childhood vaccines and autism is an important recent example that has adversely affected both science and public health. Acts of plagiarism have destroyed many scientific careers. Consequently, we want to make clear to you what plagiarism is and penalize acts of plagiarism in a manner that makes clear its seriousness.

Your laboratory reports contain information about the purpose, theory and results of your experiments. Each of you prepares a laboratory report associated only with your name. By implication you are the sole author of that report, and no section of your report can be identical (or nearly identical) to that of another person without attribution. Reports or sections of reports identical to any other source whether that source is another student, a section of a book, or information obtained from others on the web will be treated as plagiarism. In a chemistry lab report, the first instance of plagiarized sections is to receive a grade of 0. For repeat instances of plagiarism, the entire report will receive a 0, and the incident will be referred to the Chair of the Chemistry Department and the Dean of your college.

In essence, for any material submitted for a grade, text that is paraphrased from a single source must be attributed to that source. In general, material should not be copied directly, but if necessary, the fact that it has been copied should be clearly indicated (quotation marks, etc.). This applies to both text and figures and to both written and power-point presentations. For example, the cutting-and-pasting of figures from web sources for use in power-point presentations is not incorrect, so long as you clearly show that you did not create the artwork and give credit to the source from which it was copied. If you have further questions about material that may constitute plagiarism, please visit www.plagiarism.org.

To avoid plagiarism in lab reports, some specific guidelines to follow when writing your report are listed below.

1. Your laboratory reports contain information about the purpose, theory and results of your experiments. Each of you prepares a laboratory report associated only with your name. Since you are the sole author of that report, no section of your report can be identical (or nearly identical) to that of another person without attribution. Reports or sections of reports identical to any other source whether that source is another student, a section of a book, or information obtained from others on the web is treated as plagiarism unless the citation is included.

2. Data analysis must be performed individually. Students often work together, and the plagiarism policy is not designed to discourage collaborative learning. However, while your original data may be identical to that of your lab partner, your calculations must be your own. The sections of your reports containing the calculations must not be identical or nearly identical to anyone else. From experience it is unlikely for any two people analyzing the same data to obtain exactly the same set of calculations in the same order with the same final results. To avoid even the appearance of plagiarism, if you work with another student, you must perform your calculations by yourself or with the help of one of the instructors. Nearly identical calculation sections are examples of plagiarism.

3. There is only one exception to the plagiarism policy given above. If you generate your data with a laboratory partner, the original data included in your report should be identical to that of your laboratory partner. The other sections of your reports, including all written work and all calculations cannot be identical to anyone including your laboratory partner.

I have read the plagiarism policy outlined above. I understand that I am responsible for my own laboratory report even when the experimental data are collected with partners. I understand that any part of a laboratory report, other than original data, identical to that of any other person is treated as plagiarism. I also understand that any section of a laboratory report taken from another source is treated as plagiarism.

Laboratory Equipment List

Check your drawer every week for the following items:

- | | |
|---------------------------------------|---|
| 1 30 mL Beaker | 1 wash bottle |
| 1 50 mL Beaker | 1 plastic funnel |
| 1 150 mL Beaker | 2 plastic cuvettes with lids |
| 1 250 mL Beaker | 1 plastic ruler |
| 1 400 mL Beaker | 1 plastic graduated pipet |
| | 8 plastic reaction pipets |
| 1 10 mL plastic graduated cylinder | 1 plastic well plate |
| 1 25 mL graduated cylinder | 1 plastic weigh boat (replace as needed at no cost) |
| 2 125 mL Erlenmeyer flask | 1 metal spatula |
| 6 4" test tube | 1 1-hole size 0 black rubber stopper |
| 2 6" test tube | 1 magnetic stir-bar |
| | 1 white ceramic pestle |
| | 1 white ceramic mortar |
| 1 50 mL volumetric flask with stopper | 1 test tube brush |
| 1 25 mL volumetric flask with stopper | 1 test tube holder |
| 5 Scintillation vials with caps | 1 test tube rack |

Laboratory Equipment Pictures:

Beaker



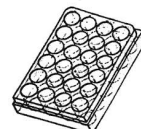
Funnel



Cuvette



Well plate



Erlenmeyer flask



Spatula



Mortar and pestle



Weigh boat



Volumetric flask



Plastic graduated pipet



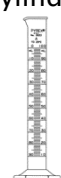
Test tube holder



Magnetic stir bar



Graduated cylinder



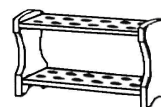
Reaction pipet



Test tube brush



Test tube rack



Schedule of Experiments:

Dates	Day	Experiment/Online Activity	
9/7-9/11	M	No labs	
	Tu	No labs	
	W	No labs	
	Th	No labs	
	F	No labs	
9/14-9/18	M	No labs	
	Tu	Group A: Lab 1 Rate Laws	Group B: Activity 1 Reaction Order
	W	Group A: Lab 1 Rate Laws	Group B: Activity 1 Reaction Order
	Th	Group A: Lab 1 Rate Laws	Group B: Activity 1 Reaction Order
	F	Group A: Lab 1 Rate Laws	Group B: Activity 1 Reaction Order
9/21-9/25	M	No labs	
	Tu	Group B: Lab 1 Rate Laws	Group A: Activity 1 Reaction Order
	W	Group B: Lab 1 Rate Laws	Group A: Activity 1 Reaction Order
	Th	Group B: Lab 1 Rate Laws	Group A: Activity 1 Reaction Order
	F	Group B: Lab 1 Rate Laws	Group A: Activity 1 Reaction Order
9/28-10/2	M	No labs	
	Tu	Group A: Lab 2 Equilibrium Constants	Group B: Activity 2 Determining pH
	W	Group A: Lab 2 Equilibrium Constants	Group B: Activity 2 Determining pH
	Th	Group A: Lab 2 Equilibrium Constants	Group B: Activity 2 Determining pH
	F	Group A: Lab 2 Equilibrium Constants	Group B: Activity 2 Determining pH
10/5-10/9	M	No labs	
	Tu	Group B: Lab 2 Equilibrium Constants	Group A: Activity 2 Determining pH
	W	Group B: Lab 2 Equilibrium Constants	Group A: Activity 2 Determining pH
	Th	Group B: Lab 2 Equilibrium Constants	Group A: Activity 2 Determining pH
	F	Group B: Lab 2 Equilibrium Constants	Group A: Activity 2 Determining pH
10/12-10/16	M	No labs	
	Tu	Group A: Lab 3 Determining K_a	Group B: Activity 3 Buffer Effects
	W	Group A: Lab 3 Determining K_a	Group B: Activity 3 Buffer Effects
	Th	Group A: Lab 3 Determining K_a	Group B: Activity 3 Buffer Effects
	F	Group A: Lab 3 Determining K_a	Group B: Activity 3 Buffer Effects
10/19-10/23	M	No labs	
	Tu	Group B: Lab 3 Determining K_a	Group A: Activity 3 Buffer Effects
	W	Group B: Lab 3 Determining K_a	Group A: Activity 3 Buffer Effects
	Th	Group B: Lab 3 Determining K_a	Group A: Activity 3 Buffer Effects
	F	Group B: Lab 3 Determining K_a	Group A: Activity 3 Buffer Effects

Dates	Day	Experiment/Online Activity
10/26-10/30	M	No labs
	Tu	Group A: Lab 4 Precip. & Complexes Group B: Activity 4 Thermo. & Solubility
	W	Group A: Lab 4 Precip. & Complexes Group B: Activity 4 Thermo. & Solubility
	Th	Group A: Lab 4 Precip. & Complexes Group B: Activity 4 Thermo. & Solubility
	F	Group A: Lab 4 Precip. & Complexes Group B: Activity 4 Thermo. & Solubility
11/2-11/6	M	No labs
	Tu	No labs – election day
	W	Group B: Lab 4 Precip. & Complexes Group A: Activity 4 Thermo. & Solubility
	Th	Group B: Lab 4 Precip. & Complexes Group A: Activity 4 Thermo. & Solubility
	F	Group B: Lab 4 Precip. & Complexes Group A: Activity 4 Thermo. & Solubility
11/9-11/13	M	No labs
	Tu	Group B: Lab 4 Precip. & Complexes Group A: Activity 4 Thermo. & Solubility
	W	No labs – Veterans’ Day
	Th	Group A: Lab 5 Electrochemistry Group B: Activity 5 Determining K_{sp}
	F	Group A: Lab 5 Electrochemistry Group B: Activity 5 Determining K_{sp}
11/16-11/20	M	No labs
	Tu	Group A: Lab 5 Electrochemistry Group B: Activity 5 Determining K_{sp}
	W	Group A: Lab 5 Electrochemistry Group B: Activity 5 Determining K_{sp}
	Th	Group B: Lab 5 Electrochemistry Group A: Activity 5 Determining K_{sp}
	F	Group B: Lab 5 Electrochemistry Group A: Activity 5 Determining K_{sp}
11/23-11/27	M	No labs
	Tu	Group B: Lab 5 Electrochemistry Group A: Activity 5 Determining K_{sp}
	W	Group B: Lab 5 Electrochemistry Group A: Activity 5 Determining K_{sp}
	Th	Thanksgiving Recess
	F	Thanksgiving Recess
11/30-12/4	M	No labs
	Tu	No labs
	W	No labs
	Th	No labs
	F	No labs
12/7-12/11	M	No labs
	Tu	No labs
	W	No labs
	Th	No labs
	F	No labs