

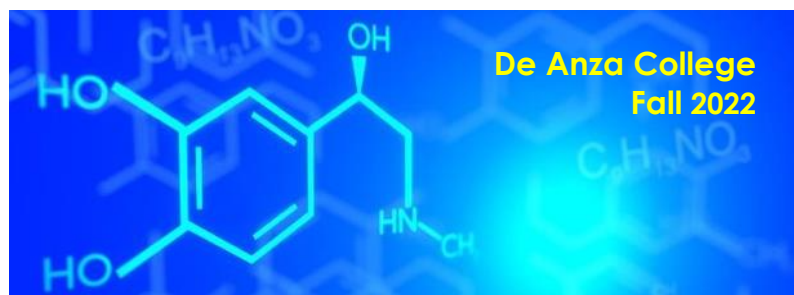
Chem 1A

General Chemistry

MW Lab

Sec 1 8:30-11:20am
Sec 2 2:30 - 5:20pm
SC 2202

CRN 21574 & 21575
5 Units
Lecture MW 12:30-
1:45pm SC 1102



De Anza College
Fall 2022

Kelley Liu, Ph.D. eMBA
Zoom PMI : 732 504 9271 | liukelley@fhda.edu
e-mail or request meeting by [Calendly](#)
[appointment](#)

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Dear Students,

Welcome back on campus! I hope you are OK and feel confident about starting the fall quarter. I hope to build on what I have learned during last two years to provide you with meaningful instruction this quarter.

I am here to help you. If you have outside responsibilities or other potential barriers to completing the work for this course, please come talk to me as soon as possible. We can figure out what accommodations will be necessary to provide for equitable participation. Don't wait until it's too late to get help.

I would like to learn a little bit about all of you, including your names, and your unique experience in the world of chemistry. I believe that every single one of you can do well in this class. In fact, I expect you to try your best, to put as much in to and get as much out of this class as you can, to ask me for help when you need it, to ask for and offer help to your classmates, and to work with me to ensure your success. In the summer, we will spend 5 hours or more each day and my office is just around the corner, open for your visit to my office hours. Getting to know you is the best part of my job.

Finally, I want to stress that ALL students are welcome in my class, regardless of national origin, religious affiliation, ethnicity, gender, sexual orientation, age, physical challenge, socioeconomic status, or cultural background. Let us work to make our classroom an environment marked by collegiality and mutual respect for one another. It is our differences, even more than our similarities that offer the richest opportunities for learning.

Kelley Liu

PREREQUISITES :

Satisfactory score on chemistry placement test or CHEM 25 or 30A; MATH 114 or 130 (intermediate algebra) or equivalent.

COURSE DESCRIPTION :

This course provides an introduction to the structure and reactivity of matter at the molecular level, as well as an application of critical reasoning to modern chemical theory and structured numerical problem-solving. Students will learn the development of molecular structure from rudimentary quantum mechanics, including an introduction to ionic and covalent bonding; chemical problem solving involving both formula and reaction stoichiometry employing the unit analysis method, and be introduced to thermochemistry and a discussion of the first law of thermodynamics. Laboratory component parallels lecture topics and also includes chemical nomenclature, basic chemical equations, stoichiometry, unknown analysis, calorimetry and fundamentals of oxidation and reduction.

TARGET STUDENTS :

This is a transfer level course aimed at science and engineering majors, pre-health, and pre-medical students. In addition, it is appropriate for returning students interested in career change to the sciences.

What You Need to Succeed in this Course

Textbook and Online Assignments

There is one recommended textbook for the course and I will make lecture slides available in the course website. You can purchase used or new or electronic textbook in the De Anza College Bookstore or online.

- **Primary Textbook**

Chemistry: The Molecular Nature of Matter and Change, 9e, by Silberberg (McGraw Hill: 2021, ISBN 978 - 1 - 307 - 60094 - 0)

- **OER Text** : LibreTexts

[Chemistry: The Molecular Nature of Matter and Change](#) by Martin Silberberg (choose *view online*, *download PDF*, or order a print version). Link on Canvas.

- **Laboratory Manual** : access on De Anza college website <https://www.deanza.edu/chemistry/Chem1A.html>

- **Online Homework** : Paid Subscription to *Aktiv Learning* from Canvas

- **Laboratory Notebook**: Quad-ruled, numbered, bound student laboratory notebook

- **Scientific Calculator**: Devices with cellular or wi-fi capability will NOT be allowed during quizzes or exams.

- **Laboratory Safety Goggles** (ANSI Z87.1 compliant)

Recommended

- 3-ring binder for handouts or electronic notebook
- Computer and printer access

An Openness to Participating Fully in Class Activities

Research shows that people learn better when they are actively involved in the learning process. In order to facilitate this, you will be asked to participate in various in-class activities and discussion.

As much as is possible given the constraints of time and the room setup, I still think it is valuable to try out a variety of hands-on activities in the classroom for you to work like a chemist (including worksheets, discussion, gathering empirical data and analysis, writing summary reports).

Expectation Agreement

As a student in Chem 1A, you are expected to...

- Preview the chapters and the lab instructions before coming to class. Your success in this class is dependent on a discipline approach.
- Print out lab material before coming to class. Arrive to class on time and bring calculator and lab notebook should be with you every day.
- Check your email and course website daily.
- Stay focused, ready to participate in class activities and work with teammates.
- Do the suggested homework problems. Turn in reports and assignments on time.
- Turn cell phones off and put them away before class begins.
- Take advantage of the Learning Resources around you.
- Develop good study habits. As a rule of thumb for any class, you need to study at least 2 hours on your own for every hour of lecture. Cramming at the last minute does not generally work for chemistry.

As your instructor, I will...

- Be your guide, to offer insights into the material and to help when you are having difficulties.
- Be available for my office hours and by appointment.
- Respond to emails.
- Keep our class web page engaging and up-to-date.
- Come to class prepared with activities and lecture materials.

Course Structure, Requirements & Evaluations

Course Topics Outline

Topics	Textbook Chapter(s)
Essentials : Intro to Chemistry, Units & Problem Solving	1
The Components of Matter	2
Stoichiometry of Formulas and Equations	3
Three Major Classes of Chemical Reactions	4
Gases and Kinetic-Molecular Theory	5
Thermochemistry	6
Quantum Theory and Atomic Structure	7
Electron Configuration and Chemical Periodicity	8
Models of Chemical Bonding	9
The Shapes of Molecules	10
Theories of Covalent Bonding	11

Note: Some topics above will be covered in lab. The above outline will be adjusted according to the actual pace of class.

Grades

Course requirements for your grade will consist of assignments, participation, labs, quizzes, and exams.

REQUIREMENT	DATE	Total 1000 Points
3 Quizzes 2 Midterms	10/19, 11/17, 12/8 10/26, 12/1	150 pts 200 pts
Online Homework Sets Discussion and In-Class Exercises	Canvas and Aktiv Learning assignments	200 pts
Lab Work	Throughout the quarter	250 pts
Final exam	Dec 14 (Wed), 11:30 – 1:30 pm	200 pts

Grading scale:

A⁺ : > 97 (± 1)%

A : ≥ 93 (± 1)%

A⁻ : ≥ 90 (± 1)%

B⁺ : ≥ 87 (± 1)%

B : ≥ 83 (± 1)%

B⁻ : ≥ 80 (± 1)%

C⁺ : ≥ 75 (± 1)%

C : ≥ 70 (± 1)%

D⁺ : ≥ 64%

D : ≥ 60%

F : < 60%

See the important notes below!

IMPORTANT additional information on grading: READ CAREFULLY!

The above point and grading breakdowns are estimates only and are subject to change. If you fail to complete more than 2 laboratory exercises (experiment or activity), you will NOT earn a passing grade (C or better) in the course, regardless of your class percentages.

- o Completion of an experiment or activity requires participation in the lab sessions in which the experiment is performed and submission of a complete lab report (or other required assignment) for that experiment or activity.
- o You must achieve 60.0 % or higher in the LECTURE and 60.0 % or higher in the LABORATORY in order to earn a C or better in the course.
- o This requirement is IN ADDITION TO achieving a minimum of 70.0 % or higher overall to earn a C.
- o You must take the final exam to pass the course.
- o LECTURE percent will be based on lecture exams (including final exam), quizzes and problems sets.

- o LABORATORY percent will be based on lab reports, prelabs, lab quizzes (counted separately in the midterms) and other lab assignments.

REGISTRATION DATES

Last Day to Add – Oct 8 | Last Day to Drop without a Grade – Oct 9 | Last Day to Drop with a “W” – Nov 18

EXAM POLICY

There are 3 quizzes and 2 midterms and comprehensive final exam in person according to the schedule. Midterms will include lab related questions. Exam coverage will be based on course progress and will be announced a week ahead.

There are no make-up exams. You need to meet with me if you have a documented physical or personal emergency that causes you to miss an exam, I will review your case and we'll figure out how to address it.

LECTURE

The lecture component of the course will present the fundamental concepts of chemistry, problem solving techniques, and sample problems. Education videos and outlines of lecture notes will be provided on the course website. You are encouraged to study the resources materials before the lecture meetings. These are intended to facilitate learning in a **semi-flipped classroom** setting – bring your questions and proactively engage yourself in group exercises will be essential to successful performance in the class.

LABORATORY EXPERIMENTS & ACTIVITIES

The laboratory component is a major and essential part of this course. Attendance in lab is REQUIRED. Laboratory work is intended to familiarize you with basic laboratory techniques, encourage exploration of the process of scientific inquiry, and illustrate concepts of chemistry. Refer to laboratory policy for schedule and details in requirements. Two ways we will conduct the labs this semester :

1. Experiments : You will be given traditional lab instructions, complete the lab reports. I will guide you through this process with significant detail.
2. Worksheet Work Sessions : Print it out and work on the problems during the lab time. Worksheets are due one week after the work session.

In addition, some online simulation activities and Canvas quizzes will be used as supplemental tools to connect the experiments to their essential ideas.

DISCUSSION / PROBLEM-SOLVING SESSIONS (RECITATION)

Group problem-solving and active discussion will be encouraged. There will be group time for organized discussion of lecture topics and problem sets. Sometimes virtual simulations will be shared on Canvas. You will be asked to perform investigation with a team of classmates to answer questions, submit work for each activity and interact on discussion board. These discussions are a required part of the course.

CANVAS WEBSITE

Problem sets, weekly lecture materials, important course announcements, updated schedules, and links to useful resources will be posted on the website. You are required to check the site regularly – I recommend a minimum of twice per week. Some announcements may be posted only on the website. If you miss a class, you are responsible to check the web site for announcement of quiz dates or any schedule or due date changes.

ONLINE PROBLEM SETS AND PRACTICE WORKSHEETS (AKTIV LEARNING)

The course focuses on problem solving. Completion of the problem sets provide practice and self-assessment that are key to successful exam performance. Problem sets will be assigned regularly through the Aktiv online homework system. Some will be used to drive discussion and study sessions in class. Others are recommended for you to complete outside of class individually or in study groups.

WORK SUBMISSION

In order to move quickly and successfully, specific deadlines for all assignments are clearly stated for each chapter. If a student fails to turn individual work in on time, the following penalties will be applied automatically by Canvas and Aktiv Learning System :

- Work that is submitted 24 hours AFTER its due date will be graded down 30%.



- Assignments will be locked for submission 10 days AFTER its due date. You will need to ask for permission to work or submit work this late.

If you have a legitimate reason that prevents you from meeting a deadline, you can make arrangement in advance with the instructor to submit assignment late. A penalty may or may not be assigned, at the discretion of the instructor.

MAKE-UP & LATE WORK

- Exams, quizzes, problem sets, and most lab exercises may not be made-up.
- Once the assignments are graded and returned, no late work will be accepted.

A Word About **Attendance**...

We have high expectations for the quality of your work and your commitment in being part of the class. We believe in your intellectual abilities and in your desire to grow as a student. We want you to come to class because you WANT to come to class. We want you to be clear on why you are here and what you hope to get out of class. You should also be mindful that when you miss class, you begin to sabotage your own learning, because it gets harder and harder to catch up when you miss class.

OFFICE HOURS

Office hours are a time to get one-on-one and small group assistance from the instructors and other students who may be attending. Take advantage of this opportunity for individualized assistance. Office hours are also available by appointment. Calendly on demand system allows you to request Zoom meeting at least 12 hours in advance. Please ask and we will try to arrange time to meet.

STUDY GROUPS

Working with other students to complete and understand problem sets is essential to the course. You will be asked to participate in group breakout sessions during lab/discussion time. If you are able to meet outside of class time it should prove helpful. Success in science and math is increased by active study and discussion with classmates.

ACADEMIC ADJUSTMENTS FOR STUDENTS WITH DISABILITIES

To obtain disability-related accommodations, students must contact Disability Support Services (DSS) as early as possible in the quarter. To contact DSS, you may:

- Set up appointment or submit application online using Clockwork Student Portal accessible via MyPortal. For a list of contacts, go online <https://www.deanza.edu/dsps/dss/>
- Email: dss@deanza.edu

- Students who need accommodated test proctoring must submit request through DSS at the beginning of the quarter.
- Exams must be booked at least three (3) business days/weekdays in advance of the instructor approved exam date/time. Finals exams must be scheduled seven (7) business days/weekdays in advance of the instructor approved exam date/time.
- Contact DSS proctoring service (dsstestproctor@deanza.edu) as soon as you can. Failure to meet the appointment booking deadlines will result in the forfeit of testing accommodations and you will be required to take your exam in class.

DROPPING OR WITHDRAWING FROM THE COURSE

If you choose to DROP or WITHDRAW from the course, it is your responsibility to follow the appropriate procedures and observe the ending dates for these options. I will not initiate a drop except under circumstances outlined in the lab section of the syllabus.

MEANS OF COMMUNICATION

To avoid missing important messages from your instructors and from the College/District, please subscribe to Canvas announcement and update your email account at myportal.fhda.edu.

Plagiarism & Cheating

De Anza College Academic Integrity Declaration & Policy
https://www.deanza.edu/policies/academic_integrity.html

- Each student is expected to turn in only his or her own work, prepared for this course during the current semester (this applies to problem sets, prelabs, reports, and all assignments in the course).
- Each student is expected to do her or his own work on quizzes, tests, and exams without assistance from other students or any unauthorized aids (e.g. cheat sheets, calculator programs, etc.).
- Each student is expected to acquire his or her own laboratory data and report that data without alteration.

DON'T CHEAT. It is unethical and, frankly, sad. Don't copy off of the tests of those around you. How do you know they'll do any better than you? If they do score higher than you, why should you get to benefit without effort from their studying? Don't copy from the assignments of others or get others to do your work. Don't give work to others for them to copy. You give up your integrity when you do these things. When you cheat, you cheapen what we are doing here in class, you deprive yourself of learning and growth, you sell yourself short, and you betray the time and effort I devote to teaching the class. It can also have long term consequences, as you will see below.

CHEATING, PLAGIARISM, OR ACADEMIC DISHONESTY OF ANY KIND WILL NOT BE TOLERATED.

Academic dishonesty will have serious consequences. The FIRST offense (and any subsequent offense) may result in any or all of the following:

- Receive a zero on the item in question.
- Lowering of the course grade (in addition to the above penalty).
- Receive an F for the Course.
- Report to the Dean of Student Affairs and Activities (maintains a record of all incidents of cheating).

Under the standards of Academic Sanctions, you may be subject to any or all of the following on the FIRST offense (and any subsequent offense):

- A warning
- Temporary exclusion from an activity or class.
- Censure.
- Disciplinary Probation.
- Suspension.
- Expulsion.

I would like to emphasize that I do NOT expect cheating to be a problem in the course. I expect that students will act with honesty and integrity in all of their work for the course.



Resources on Campus

- **Return to Campus guidelines - www.deanza.edu/return-to-campus/**
- Check out available tutoring services by clicking the yellow buttons on Student Success Center Portal. www.deanza.edu/studentsuccess/
- Math, Science & Technology Resource Center (MSTRC), S43. www.deanza.edu/studentsuccess/mstrc/

Overview of Student Services <https://www.deanza.edu/services/>

- Find your Counselors and Academic Advisers, www.deanza.edu/our-counselors/
- Psychological Services & Personal Counseling RSS 258, www.deanza.edu/psychologicalservices/
- Disability Support Services, AT 209, www.deanza.edu/dsps/dss/
- Transfer Center, RSS 201, www.deanza.edu/transfercenter/
- Extended Opportunity Programs and Services(EOPS)/Care Office, Campus Center lower level, www.deanza.edu/eops/

CHEM 1A Lab Policies

Fall 2022

Lab sessions consist of two 2 hour 50 min time blocks per week. During lab meetings, various activities may take place: experiments, analysis, modelling labs, and worksheet sessions.

You must attend all lab sessions. Be punctual! Any student who is absent for more than 3 labs must drop the course. If this occurs after the deadline to receive a W, then the student will receive an F in the course.

The laboratory work counts for 30% of your grade. There are no make-up labs. If you miss a lab you will get a zero. Check Canvas on a weekly basis for resources and any last-minute change announcements for scheduled lab activities and due dates. This is a lab science, hands-on work in the lab is fun and essential part of your learning experience.

REQUIRED LABORATORY MATERIALS

- The laboratory activities (experiments and worksheets) are available for download at the 1A lab manual link on the college website. *You are required to download, print out and bring to lab the scheduled experiment or worksheet for each laboratory meeting after the first week.*
- A scientific or graphing calculator.
- Safety goggles **MUST be labeled with an ANSI Z87-CR rating. Goggles must be worn AT ALL TIMES** in the laboratory. *You may leave them in your locker. ONE warning will be issued to any student that is observed NOT wearing their goggles over their eyes. If the warning is disregarded, dismissal from the lab will result. If an alternative eye protection is used, you must have them approved by your instructor.*
- **You must complete Lab Safety Quiz and turn in the Student Safety Contract (provided by instructor) by the end of the second lab meeting.** You will not be allowed to attend lab without completion of safety orientation.

LABORATORY EQUIPMENT LOCKER CHECK-IN

For this course, you will be assigned a locker with a combination lock that you check in during the first week of lab. *You must check-out of your locker with your instructor during your regularly scheduled lab period.*

LABORATORY SAFETY AND HOUSEKEEPING

- **Being safe in the lab is a top priority.** The importance of safety in the laboratory will be focused upon during the first week of classes. **Students who are absent for this essential lab period will be dropped from the course unless they arrange, at the discretion of the instructor, to make it up.**
- A **safety quiz** will be administered on canvas by the end of first week of class. *You must pass this quiz with a score of 90% or more. If you do not pass the test, a retest will be administered. (Note: The Safety Quiz is not included in the calculation of Course Grade)*
- You **MUST** be properly dressed for lab. Basic dress requirements include: shoes that are safe to walk in and that cover ALL your feet; sandals, flip flops or shoes that have perforations (holes) and high heel shoes are not acceptable; you **MUST** also wear clothing that covers your torso and your legs down to your knees.
- YOU are responsible for leaving your lab bench clean and free of chemical residues. To do this, you must thoroughly clean your bench top at the end of each laboratory period. *The instructor will conduct an inspection of bench tops and a 1% deduction made in your lab grade for EACH time the instructor must clean your bench top for you.*
- **Failure to comply with safety and housekeeping rules in the laboratory will result in dismissal from the lab,** which will be recorded as an unexcused absence, zero credit for the activity will be awarded.

CHEMICAL DISPOSAL

As a concern for the environment and to follow county, state and federal law, proper chemical disposal is essential. For each experiment, instructions will be provided. Ask the instructor if you have any questions.

LABORATORY LECTURE

The beginning of each laboratory session is designated as a laboratory lecture period for which you **must be on time** in order to perform the scheduled experiment. The instructor will use this lecture period to outline important details of the procedure, overview theory and calculations, and to emphasize safety hazards and proper chemical disposal. *If you are more than 10 minutes late for the start of lab lecture, you may not, at the discretion of the instructor, be allowed to perform the experiment for that day.*

PRELABS (due BEFORE the start of laboratory)

For each experiment, you must read and understand both the background information and the experimental procedure **BEFORE** coming to the laboratory. The laboratory schedule is provided on Canvas and later in this syllabus to facilitate your laboratory preparation. *Without completing the pre-lab assignment, you will not be allowed to start the experiment.* Prelab assignments are submitted for grades together with the lab reports.

LABORATORY REPORTS (25% of Overall Course grade)

The nature and due date of each laboratory assignment/report will be specified during the laboratory lecture. For some experiments, you may be collecting and sharing data with a partner, however you must do your own calculations and formulate your own conclusions for each experiment. *If students are found to have copied from one another, points will be deducted from the grade of ALL those who are involved!* Unless otherwise specified, laboratory assignments will be due and collected **BEFORE** the start of laboratory lecture by electronic submission on Canvas. If you miss an experiment during your scheduled laboratory session, then you may only make-up the experiment during an alternate laboratory session of the SAME experiment if the absence is an excused absence AND with the instructor's permission. If you are absent for an experiment due to an excused absence and are unable to make it up, then you may turn in a report using borrowed data (with permission). *In these cases, the lab report may be subject up to a 30% mark down.*

There will be a 30% penalty for late lab reports or assignments. No lab report or assignment will be accepted that is more than one lab period late. All report and assignment grades will be converted to a percentage and the lowest one dropped.

A note about Data Analysis and Worksheet days: Lab periods designated for analysis or worksheets provide you with the opportunity to collaborate with fellow classmates, to ask detailed questions and to more fully process and better understand the material. *Due to their essential part in the coursework, absences from these days will result in up to a 30% deduction of credit on the assignment involved.*

LABORATORY QUIZZES will be included with MIDTERMS These quiz questions will be based on the laboratory exercises and experiments and will cover the chemistry, procedure, calculations, and conclusions of the experiment. **Critical thinking will be required!**

CHECK LIST FOR COMPLETED PRELABS and LABORATORY ASSIGNMENTS/REPORTS

The following outline indicates the minimum amount of information that should appear in your notebook. On occasion it may be necessary to include additional information in the notebook.

* Indicates the material that must be completed before the start of each new experiment. The instructor will check this at the beginning of each new experiment.

** Indicates the material that must be collected/completed during the lab session.

* Title and Date:

Each experiment should begin with the title of the experiment and the date it is performed.

*Abstract:

Each experiment should also contain a brief summary that describes the main purpose of the experiment. A short description of the experimental techniques used and any pertinent mathematical and chemical equations should be included here. Think about these questions when writing an abstract:

- What is being determined in the experiment?
- How will it be determined? What is the experimental technique?
- Did I use enough detail? (Chemical names, concentrations, etc.)
- Did I use the passive voice?

***Experimental Procedure:**

The procedure is a detailed description of how the data is to be obtained. Use a two columned format. In the left hand column you should include a step-by-step procedure that is outlined in the laboratory manual; however, do not copy straight from the manual. The procedure should be in your own words so that you have a complete understanding of how the experiment will be performed. A complete stranger should be able to pick up your notebook and follow the procedure. The right hand column should be used for recording observations as well as any deviations from the planned procedure (see below)

****Observations:**

Observations are just as important as measurements. You should note any color changes, bubbles, instrumentation problems, etc. in the right hand column next to the procedural steps.

****Data and Calculations:**

Data should be listed in a table or tables. The data tables in your notebook are a good guideline for the types of data tables that should be listed in your report. All data should be clearly labeled and should include the proper units of measurement. You may also be required to graph your results. The graph should be done using Microsoft Excel and should have all axes labeled with the proper units. Print out of any graphs should be included with the report

Calculations should be organized in a logical fashion and they should be clearly labeled. For each type of specific calculation you must show at least one sample calculation using your data. Make sure that appropriate units are also included in the calculations. For any "repeat" calculations you should list the results also in a table.

****Conclusion:**

When asked a brief conclusion should be provided. Your instructor will let you know when this is necessary.

Examples of lab reports and tips for electronic submission of scanned reports will be provided on Canvas.



Course Calendar

Fall 2022

Week	Mon	Wed	Assignment Due
Sep 25 th	Lec : Welcome and Intro to Chemistry Lab : Safety Orientation and Check-In Math Review I	Lec : Ch1 Fundamental Chemistry Ideas Lab : A1 Measurements Math Review II	Lab Safety Quiz
Oct 2 nd	Lec : Ch1 Scientific Approach Lab : A2 Nomenclature	Lec : Ch2 Matters, Atoms & Elements Lab : A3 Hydrate 1	Problem Set #1
Oct 9 th	Lec : Ch2 Compounds & Separation of Mixture Lab : A3 Hydrate 2	Lec : Ch3 the Mole Lab : A4 Precipitation 1	Problem Set #2B
Oct 16 th	Lec : Ch3 Chemical Composition & Formula Lab : A4 Precipitation 2	Lec : Ch3 Stoichiometry Lab : A4 Precipitation 3	<i>Quiz #1 (Ch 1, 2 & Moles)</i> Problem Set #2A Problem Set #3A
Oct 23 th	Lec : Ch4 Aqueous Chemical Reactions Lab : A5 Types of Reactions 1	Lec : <i>Midterm #1 (Ch 1-3+ Lab A1-A3)</i> Lab : A5 Types of Reactions 2	Problem Set #3B
Oct 30 th	Lec : Ch4 Oxidation-Reduction Reactions Lab : A6 Conductivity 1 (Vernier)	Lec : Ch6 Enthalpy Lab : A6 Conductivity 2 (Vernier)	Problem Set #4
Nov 6 th	Lec : Ch6 Calorimetry and Hess' Law Lab : A7 Acid-Base Titration 1	Lec : Ch7 Quantum Mechanical Model of Atom Lab : A7 Acid-Base Titration 1	Problem Set #5
Nov 13 th	Lec : Ch7 Atomic Orbitals Lab : A8 Calorimetry 1 (Vernier)	Lec : Ch8 Electron Configuration Lab : A8 Calorimetry 2 (Vernier)	<i>Quiz #2 (Chap 4 & 6)</i> Problem Set : #6
Nov 20 st	Lec : Ch8 Periodic Trends Lab : A9 Redox Titration 1	Lec : Ch9 Models of Chemical Bonding Lab : A9 Redox Titration 2	CHEM101 Chap 9 Preview Problem Set : #7
Nov 27 th	Lec : Chap 10 Shapes of Molecules Lab : A9 Redox Titration 3	Lec : <i>Midterm #2 (Ch 4-7 + Lab A4-A8)</i> Lab : A10 Hydrogen Line Spectra	Problem Set : #8
Dec 4 th	Lec : Ch11 Theories of Covalent Bonding Lab : A11 Lewis Structure and Molecular Shape	Lec : Ch11 Theories of Covalent Bonding Lab : Check Out	<i>Quiz #3 (Chap 8-10)</i> Problem Set : #9
Dec 11 th	Optional : Final Review	Final Exam (11:30-1:30 pm) comprehensive	Problem Set : #10

Student Learning Outcome(s):

*Identify and explain trends in the periodic table.

*Construct balanced reaction equations and illustrate principles of stoichiometry.

*Apply the first law of thermodynamics to chemical reactions.

Office Hours:

In-Person	Chemistry Faculty Lounge	M,W	11:30 AM	12:00 PM
In-Person	SC2202	M,W	05:30 PM	06:00 PM