

Chemistry 201

Fall 2024

Lecturer: Dr. Jing Gu

Email: jgu@sdsu.edu

Lecture: MWF 3:00 - 3:50 pm in AL201

Office Hrs: MW 9:00-10:00 am in EIS 211

Or by appointment through email

Lab Coordinator: Laurie Clare

Email: lclare@sdsu.edu

Office Hrs: by appointment in CSL 313

Waitlist students should email the lab coordinator (lclare@sdsu.edu) with your name and Red ID info ASAP to gain access to materials on Canvas. You are 100% responsible for all assignments that are due and for keeping up with the work.

Text: Chapters 4, 7, 12-21 of “Chemistry” by Openstax; a PDF version of this is available for download on the Chem 201 Canvas site. You can also order an on-demand print version at the Book Store. Finally, if you wish, the entire text can be viewed online or downloaded for free from <https://openstax.org/details/books/chemistry>.

Lecture Note: Selected PowerPoint slides will be accessible on Canvas. However, since lectures include substantial board discussions, students are accountable for creating their own lecture notes.

Other Required Materials: Chem 201 Lab Manual, Lab Notebook, lab coat or flame-resistant yellow lab apron, safety glasses, and a non-graphing scientific calculator. To get your lab manual, go to the second-floor help desk in the bookstore and give the clerk your red ID number.

OWLv2 Online HW (Required): OWL will be used extensively for graded homework. You will find the link for registration on your Canvas Modules page labeled “Cengage - OWLv2 Homepage”, located near the top. Use this link to register and access your homework. If you choose to opt-in for Equitable Access, OWLv2 will be included. Purchasing it as a standalone cost \$52 for one term, but please note that this price might not be accurate. Additionally, you do not need to purchase additional textbooks for this course.

Getting Help: CHEM 201 Student Help will be available in the Math & Stats Learning Center (MSLC) located on the third floor of Love Library in room LL328 or online through Zoom. The MSLC will have chemistry tutors as well as TA help hours to help with homework, labs, etc. A schedule of chemistry tutors is available through <https://mslc.sdsu.edu/ta-office-hours/> A schedule for TA office hours at the MSLC will be made available in Canvas at the end of the first week of the semester. Please don't hesitate to attend

Dr. Gu's office hour with any questions regarding the lecture. Contact the coordinator **Laurie Clare** (lclare@sdsu.edu) regarding labs, rescheduling recitations, quizzes, worksheets, make-up exams and any OWL-related issues.

When sending an email to Dr. Gu or Laurie Clare, use the Canvas email system and include your lab section number. This makes it faster to respond to your needs.

Email Policy: Students are provided with an SDSU Gmail account. Use this link: **SDSU Email Account to create your account if you have not already done so.** Your sdsu.edu account will be used for all communications. Students are encouraged to use the **Canvas email system** for communication, as your messages might get lost in a lengthy queue of instructors' regular inboxes otherwise. To ensure a prompt response, please include "CHEM 201" in the subject line of your emails and remember to **provide your full name and lab section number**. Per University Senate policy, students are responsible for checking their official university email once per day during the academic term. For more information, use this link: **Student Official Email Address Use Policy.** The course instructor and lab coordinator will be available via email to answer questions or to schedule office hour appointments. Please allow at least 24 hours for a response, longer over weekends and holidays.

Modes of Instruction for Lecture and Recitation: Unless otherwise instructed, all lecture and recitation classes are in-person. Lectures are held on Mondays, Wednesdays, and Fridays at 3:00 pm. **Recitations are held on Mondays and Tuesdays only. Attend only the recitation on your schedule.** Recitation sessions include a review of lecture material followed by a 20–25-minute quiz, or your TA will give a short review followed by handing out a worksheet. Students may collaborate and ask their TA questions to complete the worksheet.

Mode of Instruction for Lab: All labs are in-person. Attendance is mandatory and you must attend the lab section for which you are registered. If you attend any other lab section without permission from the lab coordinator, you will receive a zero score for the formal lab write-up.

Labs are two hours and forty minutes long; please do not arrive late and do not stay past your scheduled time.

Each of the seven quantitative labs will have its own pre-lab quiz posted on Canvas to be completed before you go to lab; they are worth 5 points each. No due date extensions will be given.

A pre-lab write-up, written in your lab notebook, is also required and due at the beginning of each quantitative lab. Hand in the carbon copy version to your TA.

No make-up labs will be allowed, and there are no dropped lab scores.

There will be three separate qualitative labs. Two of the qualitative labs are single-session labs with scores based solely on correctly identifying the contents of an issued sample. The last qualitative lab is a three-week lab (one lab session per week). A short report based on identifying the contents of the issued sample will be due one week after the last session. No pre-labs are required for qualitative labs, but observations and results must be recorded in the lab notebook, signed, and dated by both you and your TA, then handed in to be graded.

As you conduct each experiment, record your observations and data in ink into your lab notebook. Make sure to have your TA sign and date your data pages at the end of the lab session. Data from the experiment is used to write a formal lab report which is due before the start of the following lab meeting. There will be two lab notebook checks during the semester worth 10 points each. Late labs can be uploaded into Canvas up to one week past the due date, but you will need to contact the lab coordinator in order to open the Canvas submission site. Two points will be deducted for each weekday the lab report is late. **Lab reports will not be accepted one week after the due date.** Under no circumstance will you be allowed to turn in all your lab reports at the end of the semester

Absences

Absences from Lecture: All lectures will be recorded and available on Canvas. You can watch any missed lectures, but please note that the video and sound quality may not be optimal.

Absences from Recitation:

Quizzes. Are given only during Monday and Tuesday recitations and are worth 20 points each. Always attend your scheduled recitation session. If you attend another recitation without permission, 20 points will be deducted from your overall quiz score.

If you know you are to miss a recitation class, for any reason, contact the Chem 201 lab coordinator, lclare@sdsu.edu, BEFORE your recitation begins. You may be placed in another session during the same week, but placement is based upon seat availability and cannot be guaranteed. Only one make-up session per student is allowed. If you missed a recitation and did not contact coordinator before the beginning of your scheduled recitation, you will not be placed into another recitation session and you will receive a zero score. If you missed a recitation and did not contact the coordinator before your session because of illness or family emergency, contact the lab coordinator the same day you missed class and be prepared to show proof. You must provide a doctor's note or a time stamped document from Student Health Services to prove illness or provide evidence to support your claim of family emergency within 24 hours from the start of your missed class for an excused absence. Only one excused absence because of an emergency or illness is allowed.

The lowest quiz score is dropped.

Worksheets. If you miss a recitation that includes completing a worksheet, contact the lab coordinator so that you can make up a missed worksheet during your TA's office hour. Make-up must occur during the same week the worksheet is issued. **Only one make-up is allowed. No worksheet scores are dropped.**

Absence from Lab: Lab attendance is mandatory but if you are to miss a lab **due to an illness, injury, or an emergency**, contact the **lab coordinator BEFORE** your lab session starts. **Documentation that provides evidence of illness, injury, or emergency is required.** Illness or injury documentation must include the dates your doctor excuses you from being at school. Documentation for an emergency must show evidence of an emergency. If possible, you will be placed in another lab section. If we cannot place you in another lab section, lab data from either the coordinator or a lab partner can be used to complete the formal lab write-up, but maximum points will be reduced to $\frac{3}{4}$ the normal total. **This will be done one time only.**

Long Term Medical Related Absence: Student Health Services (SHS) does not provide medical excuses for short-term absences due to illness or injury. When a medical-related absence persists beyond five days, SHS will work with students to provide appropriate documentation.

When a student is hospitalized or has a serious, ongoing illness or injury, SHS will, at the student's request and with the student's consent, communicate with the student's instructors via the Vice President for [Student Affairs and Campus Diversity](#) and may communicate with the student's Assistant Dean and/or the [Student Disability Services](#).

Lab Safety is very important. Please complete the Hazardous Materials and Hazardous Equipment in Instructional Courses Module before 11:55 pm Sept 3. This is worth 3 points. You will not be allowed to participate in Experiment 1 if you have not completed the safety survey. There will be a safety quiz given during the first lab meeting. Your TA will review the safety issues and then you will have 10-15 minutes to take a short quiz. It is worth 12 points.

COVID-19 Protocols:

If you test positive for COVID and must miss a class or lab, you can also request a class excuse letter. Send an email to vpsafrontdesk@sdsu.edu to notify the university. Student Affairs and Campus Diversity will initiate the process for absent letters to be sent to course instructors, Assistant Deans, and the provost. Medical documentation may be required prior to the letter being issued. Contact the lab coordinator if you will be absent from a lab session due testing positive for COVID-19. If students need assistance purchasing facial coverings, please contact the [Economic Crisis Response Team](#)

Help control the COVID-19 pandemic:

Addressing the COVID- 19 pandemic is a shared responsibility. The California State University System mandates that students, faculty and staff receive a full COVID-19 vaccination to be on campus. Do not come to campus if you do not feel well. Remain home and monitor your symptoms and seek medical attention as needed. For more information on vaccination and face covering compliance please visit <https://sacd.sdsu.edu/student-rights/covid-policies>

Grading:

Letter grades will be assigned based on your total points (1250 points) using the following scale:

A: 100.0-90.0 %; A-: 89.9-87.0 %

B+: 86.9-85.0 %; B: 84.9-80.0 %; B-: 79.9-78.0 %

C+: 77.9-75.0 %; C: 74.9-65.0 %; C-: 64.9-60.0 %

D: 59.9-50.0 %

F:49.9 %

<u>Point Distribution</u>	<u>Points</u>
3 midterm exams, multiple choice, 100 pts each	300
Final, multiple choice, comprehensive	200
Quizzes (20 pts each), best 8 out of 9	160
4 Worksheets (10 pts each)	40
Ion Naming Test, possible 5 pts EC	0
Pipet Exercise	5
7 Lab Reports	175
2 Group Unknown, 20 pts each	40
General Unknown,	50
Lab Participation and Notebook Check	30
Lab Safety Survey and Safety Quiz	15
Pre-Lab Quiz (7 Quizzes 5 pts each)	35
OWL Homework	<u>200</u>
Total Points	1250

Quizzes: All quizzes, not including the ion test, will be given in assigned Recitation rooms. They will be based on **lecture material from the previous week**. There are a total of nine quizzes, the lowest quiz score is automatically dropped.

Worksheets: There are a total of 4 worksheets, they are worth 10 points each. No Worksheet scores are dropped.

OWL Homework: Students need to finish problem sets associated with each exam. There are four submission deadlines set at 11:55AM on the exam dates. These deadlines separated by multiple weeks provide flexibility in distributing the workload. However, consistently progressing on homework each week is essential. Ensure you align your homework pace with the lecture schedule. You should schedule at least 4-6 hours per week to complete your weekly OWL assignments. Please refer to the suggested OWL Homework schedule on Canvas. **No due date extensions** will be granted (please refrain from asking!), but **you can still submit the late work** until the end of the semester with a **30% late penalty** applied. Note that the late penalty is applied to the entire assignment if you choose to reopen the assignment after the due date. The OWL homework will be worth 100 points distributed between 16 weeks of assignments, approximately one assignment for each week. The point value of each assignment is weighted according to the quantity and difficulty level of each assignment. Please contact **Laurie Clare (lclare@sdsu.edu)** with any OWL related issue.

Midterm exams: They will be conducted online via OWL. The exams start at 2:30 pm and must be completed before 4:30 pm on the scheduled date. Students have **one hour** from the time they opened the exam until completion. They are **non-comprehensive** and will consist of questions based on lecture material including topics covered in the class immediately preceding the exams. Please refer to the schedule table for exam dates, and more detailed information will be provided.

Final exam: The final will be conducted online via OWL. The exam starts at 12:30 pm and must be completed before 3:30 pm on the scheduled date. Students have **two hours** from the time they opened the exam until completion. It is **comprehensive** and will consist of questions based primarily on questions from the three midterm exams. There will be a few questions based on material covered in lecture after the third midterm exam. Please refer to the schedule table for exam dates, and more detailed information will be provided.

A make-up online exam will be given only for legitimate excuses such as NCAA sanctioned athletic competition, SDSU student associated conferences, religious holidays, illness, or emergency. **There won't be any make-up allowances for technical issues like malfunctioning computers or network problems.** Make-up exams will be scheduled on the Monday following midterms between 6 am and 8 am, and the day after the final exam between 6 am and 9 am. Documentation for missing an exam is required. Documentation for emergency must show evidence of emergency and for illness, documentation should include a doctor's note stating the range of days that are excused. No exam make-up accommodations will be given to SDSU Club athletics. Work is not a legitimate reason since exams are available at regular lecture time. **Make sure to contact Professor Clare or Dr. Gu before the beginning of an exam and provide the proper documentation.**

Grade Disputes: Online exam scores are immediately scored. As soon as everyone has taken the exam, an exam key will be posted. If you suspect an error in your grade, please contact the lab coordinator within one week of the exam key posted. After one week, your grade stands. If you suspect an error in grading on your quiz or worksheet, please **contact your Recitation TA within one week of grades being posted**. If you suspect an error in grading your lab report, **please contact your lab TA within one week of that grade being posted**. If an unresolved grading dispute develops regarding your quiz, worksheet, or lab, please contact the lab coordinator within 10 days of the posted grade.

Dropping the course: It is your responsibility to follow university policies regarding Cr/NC, drops, withdrawals, and incompletes. Sep. 9th at 11:59 pm is the last day to add, drop, or change grading basis.

Policy on Cheating/Plagiarism:

There is a zero-tolerance policy regarding plagiarism in this course. Any instances of cheating or plagiarism identified by the TA, lab coordinator, or the instructors, will result in a meeting between the instructor and student(s). If warranted, the instance and documentation of plagiarism will be reported to the **The Center for Students Rights and Responsibilities** and the student will **receive a grade of F for the course**. It is your responsibility to know what constitutes cheating and plagiarism.

While completing experiments students will work in pairs collecting data. We recognize that this data will be the same in both reports but if any other parts of the report are identical (not including the data), both students will receive zero scores. Other parts of the report that must be your work only includes tables, graphs (Except for Experiment 7 where you will be allowed to use your lab partner's graphs), sample calculations and interpretation of data. First time offense will result in a meeting with Lab Coordinator and an F grade on the report. Second offense will warrant the reporting to The Center for Students Rights and Responsibilities which will result in disciplinary action.

Learning Objectives for Chem 201

The main goal of Chem 201 is to complete the general introduction to Chemistry begun in Chem 200 in order to prepare you for more advanced courses in science.

More specific goals are to:

- (1) Make sure you are completely comfortable with basic chemical “arithmetic”, that is, calculations involving molecular weight, grams to moles, moles to grams, molarity, dilutions, reaction stoichiometry, and so on.
- (2) Make sure you are completely comfortable with drawing and looking at Lewis structures of chemical compounds. To start to get you thinking of molecules as 3-D objects and not just a collection of letters and numbers in a molecular formula.
- (3) Make sure you know the names, formulas, charges and structures of the common ions and the common strong acids and bases.
- (4) To learn to identify and understand what is happening in three fundamental types of chemical reactions: (i) acid-base reactions, (ii)

ion dissolution and precipitation reactions and (iii) oxidation/reduction reactions.

(5) To learn that there are two aspects to all chemical reactions - thermodynamics and kinetics, that thermodynamics determines the final result or equilibrium state of a chemical reaction, and that kinetics determines how long it will take to reach the equilibrium state.

(6) More specifically, with regard to thermodynamics, to learn how we characterize the equilibrium state using the equilibrium constant expression and equilibrium constant (K), how you can use knowledge of K along with other information (starting concentrations and stoichiometry) to calculate the final concentrations in a reaction, and how you can experimentally determine values of K by measuring the final concentrations. You should also learn that ultimately the value of K is determined by the thermodynamic properties (enthalpy, entropy and free energy) of the reactants and products in a chemical reaction and how you can use knowledge of these values to calculate K 's.

(7) With regard to kinetics, you should learn how we characterize the kinetics or speeds of chemical reactions with the rate law and rate constant (k), how we have to determine both of these quantities by experiment, and what types of experiments can be done to do this. You should also learn that the kinetics are determined by the exact path or mechanism that converts reactants to products, and how knowledge of the rate laws is very useful in determining what are likely mechanisms for a reaction.

Accommodations (SDS):

SDSU via the Student Disability Services (SDS) provides accommodations for students with documented disabilities or medical conditions covered under the Americans with Disabilities Act (ADA). In keeping with current public health guidance, no accommodations will be granted to students without an ADA-qualified disability or medical condition.

If you are a student with a disability and need accommodations for this class, please contact the Student Disability at sds@sdsu.edu as soon as possible. Accommodations are not retroactive; we cannot provide accommodations based upon disability until Dr Gu and Laurie Clare have received an accommodation letter from the Student Ability Success Center. SDS registration and accommodation approvals may take up to 10-14 business days, so plan accordingly.

Away Games and Competition for SDSU NCAA Athletes

If you are an SDSU NCAA Athlete, send your schedule of competition to the lab coordinator, lclare@sdsu.edu. Accommodations will be made to help mitigate missed assignments because of scheduled games or competitions. Please have your coach email your Fall 2024 event schedule to the lab coordinator within the first two weeks of class. This accommodation does not apply to students in an SDSU athletic club or any other athletic club.

Religious Holidays

According to the University Policy File, students should notify instructors of planned absences for religious holidays by the end of the second week of classes. Please contact the coordinator: lclare@sdsu.edu within the first two weeks of the semester for your request to miss a recitation or lab due to your religious holiday. If no request is received within the first two weeks, no accommodation for holiday will be given.

Preferred Names & Pronouns: Any student who wishes to be addressed by a name other than what is presented in Canvas is encouraged to contact the lab coordinator, (lclare@sdsu.edu) with the name you wish to use. Similarly, if you have preferred pronouns that you wish to be addressed by, please contact the coordinator. The coordinator will communicate your desires to the TAs and all instructional staff will gladly honor your request.

Finding Help on Campus:

Need help finding help -- an advisor, tutoring, counselling, or emergency economic assistance? The SDSU Student Success Help Desk is here for you. Student assistants are available via Zoom Monday through Friday, 9:00 AM to 4:30 PM to help you find the office or service that can best assist with your particular questions or concerns.

Suggested: Consider adding a link to your college's Student Success Center or your department's tutoring center or supplementary instruction activities.

- CAL Student Success Center: <https://cal.sdsu.edu/academics/student-success>
- College of Education Student Success Center: <https://education.sdsu.edu/oss>
- Center for Student Success in Engineering: <https://csse.sdsu.edu/advising/advising>
- CoS Student Success Center: <https://cossuccess.sdsu.edu/>
- FSB Student Success Center: <https://business.sdsu.edu/undergrad/advising>
- HHS Advisors: <https://chhs.sdsu.edu/academics/advising>
- IVC Student Success and Retention: <https://imperialvalley.sdsu.edu/about/departments/student-affairs/retention>
- PSFA Advisors: https://psfa.sdsu.edu/resources/student_advisors
- Math & Science Learning Center: <https://mslc.sdsu.edu/>

Sexual Violence / Title IX Mandated Reporting: As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I am a mandated reporter in my role as an SDSU employee. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep the information you share private to the greatest extent possible. However, I am required to share information regarding sexual violence on SDSU's campus with the Title IX coordinator, Jessica Rentto 619-594-6017. She (or her designee) will contact you to let you know about accommodations and support services at SDSU and possibilities for holding accountable the person who

harmled you. Know that you will not be forced to share information you do not wish to disclose, and your level of involvement will be your choice. If you do not want the Title IX Officer notified, instead of disclosing this information to your instructor, you can speak confidentially with the following people on campus and in the community. They can connect you with support services and discuss options for pursuing a University or criminal investigation. Sexual Violence Victim Advocate 619-594-0210 or Counseling and Psychological Services 619-594-5220, psycserv@sdsu.edu. For more information regarding your university rights and options as a survivor of sexual misconduct or sexual violence, please visit titleix.sdsu.edu.

The Family Educational Rights and Privacy Act (FERPA) mandates the protection of student information, including contact information, grades, and graded assignments. Dr Gu or Laurie Clare will not post grades or leave graded assignments in public places. Students will be notified at the time of an assignment if copies of student work will be retained beyond the end of the semester or used as examples for future students or the wider public.

SDSU Economic Crisis Response Team:

If you or a friend are experiencing food or housing insecurity, technology concerns, or any unforeseen financial crisis, it is easy to get help! Visit sdsu.edu/ecrt for more information or to submit a request for assistance. SDSU's Economic Crisis Response Team (ECRT) aims to bridge the gap in resources for students experiencing immediate food, housing, or unforeseen financial crises that impacts student success. Using a holistic approach to well-being, ECRT supports students through crisis by leveraging a campus-wide collaboration that utilizes on and off-campus partnerships and provides direct referrals based on each student's unique circumstances. ECRT empowers students to identify and access long term, sustainable solutions in an effort to successfully graduate from SDSU. Within 24 to 72 hours of submitting a referral, students are contacted by the ECRT Coordinator and are quickly connected to the appropriate resources and services.

For students who need assistance accessing technology for their classes, visit our ECRT website (sdsu.edu/ecrt) to be connected with the SDSU library's technology checkout program. The technology checkout program is available to both SDSU and Imperial Valley students.

Land Acknowledgement:

We stand upon a land that carries the footsteps of millennia of Kumeyaay people. They are a people whose traditional lifeways intertwine with a worldview of earth and sky in a community of living beings. This land is part of a relationship that has nourished, healed, protected, and embraced the Kumeyaay people to the present day. It is part of a world view founded in the harmony of the cycles of the sky and balance in the forces of life. For the Kumeyaay, red and black represent the balance of those forces that provide for harmony within our bodies as well as the world around us. As students, faculty, staff and alumni of San Diego State University we acknowledge this legacy from the Kumeyaay. We promote this balance in life as we pursue our goals of knowledge and understanding. We find inspiration in the Kumeyaay spirit to open our minds and hearts. It is the legacy of the red and black. It is the land of the Kumeyaay.

Fall 2024 Schedule

Week # and Dates	Lecture Monday	Recitation Mon/Tues	Lecture Wednesday	Lab Wed/Thurs	Lecture Friday
#1 Aug. 26 th -Aug 30 th	Introduction to Class <i>First day of classes</i>	Introduction Review for ion test	Chap. 7 - Review of Lewis Structures of Organic Compounds	Locker Check-in Introduction Safety Ion Test - 1st try Pipet Exercise	Chap. 7 - Review of VSEPR: Drawing 3D Structures of Organic Compounds
#2 Sep 2 nd -Sep 6 th	Labor Day Holiday No class	No Recitation	Chap. 7-Review of Lewis Structures of Main Group Inorganic Compounds; Formal Charge and Resonance	Experiment 1 - Introduction to the Spectrophotometer Ion Test - 2nd try	Chap. 4 - Review of Basic Reaction Stoichiometry; Limiting Reagents
#3 Sep 9 th – Sep 13 th	Chap. 13 - Equilibrium Basics: Equilibrium Constants Add/drop deadline	Quiz 1	Chap. 14 - Dynamic Equilibrium: Bronsted Acids and Bases	Mg Group Unknown <i>Exp. 1 report due</i>	Chap. 14 - Conjugate Acid/Base Pairs, pH & pOH
#4 Sep 16 th - Sep 20 th	Chap. 14 – pH of Strong Acids and Bases	Quiz 2	Chap. 14 – pH of Weak Acids Solutions	Experiment 2- Phosphate Analysis	Chap. 14 – pH of Weak Base Solutions
#5 Sep 23 rd - Sep 27 th	Chap. 14 – IDing Molecular and Ionic Acids and Bases	Quiz 3	Chap. 14 – pH of Ionic Acid/Base Solutions	Experiment 3- Using pH meter to measure K _a and K _b <i>Exp. 2 report due</i>	Exam 1 <i>Homework week 1-5 due</i>

Sep. 9th – Last day to add, drop, or change grading basis (11:59 pm deadline).

Week # and Dates	Lecture Monday	Recitation Mon/Tues	Lecture Wednesday	Lab Wed/Thurs	Lecture Friday
#6 Sep 30 th -Oct. 4 th	Chap. 14 – Buffers	Worksheet 1	Chap. 14 – Buffers	AI Group Unknown <i>Exp.3 report due</i>	Chap. 14 – Strong acid/base titrations
#7 Oct. 7 th -Oct. 11 th	Chap. 14 – Titrations of Weak Acids and Bases	Quiz 4	Chap. 15 Ionic Solubility Equilibria	Experiment 4 - Titration Curves	Chap. 15 - Factors Affecting Solubility: LeChatelier's Principle
#8 Oct. 14 th -Oct. 18 th	Chap. 15 – Factors Affecting Solubility; Complex ions	Quiz 5	Chap. 15 – Precipitation Reactions; Qual Scheme	Experiment 5 – Determining K _f of a Complex Ion <i>Exp.4 report due</i>	Chap. 16 – Entropy
#9 Oct. 21 st -Oct. 25 th	Chap. 16 - ΔH° and ΔS° ; 2 nd Law of Thermodynamics	Quiz 6	Chap. 16 - Free Energy	General Unknown <i>Exp.5 report due</i>	Exam 2 <i>Homework week 6-9 due</i>
#10 Oct. 28 th -Nov.1 st	Chap. 16 – ΔG and Equilibrium	Worksheet 2	Chapter 17 Balancing Oxidation and Reduction Rxns	General Unknown	Chap. 17 – Electrochemical Cells

Week # and Dates	Lecture Monday	Recitation Mon/Tues	Lecture Wednesday	Lab Wed/Thurs	Lecture Friday
#11 Nov. 4 th -Nov. 8 th	Chap. 17 – Standard Electrode Potentials	Quiz 7	Chap. 17 - Using Standard Electrode Potentials	General Unknown	Chap. 17 – Nernst Equation, Concentration Cells
#12 Nov. 11 th -Nov. 15 th	Veteran Holiday No Class	No Recitation	Chap. 12 - Rate of Reaction	Experiment 6 Echem Cells <i>Gen. Unk. report due</i>	Chap. 12 - Rate Laws
#13 Nov. 18 th -Nov. 22 nd	Chap. 12 – Integrated Rate Laws	Quiz 8	Chap. 12 – Pseudo Order kinetics Arrhenius Eqn	Experiment 7 Chemical Kinetics Last Day of Lab <i>Exp. 6 report due</i>	Chap. 12 – Collision Theory
#14 Nov. 25 th -Nov. 29 th	Chap. 12 – Transitions States	Worksheet 3	No Class	Thanksgiving Holiday No Class	Thanksgiving Holiday No Class
#15 Dec. 2 nd -Dec. 6 th	Chap. 12 - Mechanism	Quiz 9	Chap. 12- Catalysis	Locker Check Out <i>Exp. 7 report due</i> Last Day of Lab	Exam 3 <i>Homework week 10- 15 due</i>
#16 Dec. 9 th -Dec. 13 th	Chap. 21 – Nuclear Reactions and Radioactivity	Worksheet 4	Chap. 21 – Kinetics of Radioactive Decay / Energy of Nuclear Reactions Last Day of Class		Dec. 18th, Final Exam <i>Homework week 16 is due</i>

The Final Exam is on Wednesday, Dec. 18th. It starts at 12:30 p.m. and must be completed before 3:30 p.m. You have two hours from the time the exam opens until it closes.