Instructor: Dr. Jeffrey Paradis (he, him, his) **Email:** jparadis@csus.edu

Please include your full name and course section (CHEM 4 – Sec 01 or CHEM 4 – Sec 03) when emailing me. For homework questions, please type or copy/paste the question from MasteringChemistry so I know exactly which question you are referring to. Also show all of your work so I can see where you are stuck; you can either type your work into your email or take a picture/scan your handwritten work and attach it to your email.

Class website: www.csus.edu/indiv/p/paradisj/chm4/chm4.htm

Lecture: This course is being taught synchronously. PowerPoint slides for each lecture will be posted after each class. Students are expected to attend the virtual Zoom lectures at their registered time. If students have an emergency, they are welcome to attend the other lecture section, but they won't have access to their student response systems for class voting. In that case, students should send me a message during the Zoom session to let me know they are attending from the other section and I will give them their missed points.

- MWF, 8:00 – 8:50 am (Sec 01) https://csus.zoom.us/j/94485031093
- MWF, 10:00 – 10:50 am (Sec 03) https://csus.zoom.us/j/92611622522

Open student hours: When you enter CHEM 4 open student hours, you'll be placed in a waiting room until I have finished with the previous student. Open student hours are first-come, first-served and no appointment is needed. Students who are unable to make scheduled open student hours or who need to speak to me in private should email me to set up an individual one-on-one Zoom appointment.

- MWF, 9:00 – 9:30 am https://csus.zoom.us/j/94072235893
- MWF, 11:00 – 11:30 am https://csus.zoom.us/j/94717103997

Required materials: This is an *IncludED* course. You have already paid for all of the course required materials through a course fee ($63). Do not purchase these materials through another source as you have already paid for them. Your *IncludEd* course fee includes:

1) Pearson E-text for Introductory Chemistry by Nivaldo Tro
2) Access to MasteringChemistry (online homework)
3) Access to Learning Catalytics (in-class student response system, "clickers")

Information about accessing your E-text and MasteringChemistry will be provided the first day of class.

If you would like to be able to access your E-text even without Wi-Fi access, download the app "Pearson eText mobile app". Students who want a paper copy can buy/rent any edition of Tro's Introductory Chemistry (I've seen old editions for < $10 online). Alternatively, students who would like an optional loose-leaf copy of the textbook can purchase it in the bookstore for $50.00 [Introductory Chemistry by Tro (Loose Pages without Access Code) 6th Ed.; ISBN: 9780134564074].

Additional required materials:

- **Calculator:** Students should have access to a scientific calculator with log and exponent functions for every lecture and exam period.
- **Electronic devices**: Ideally, students will have access to two electronic devices for each class: a laptop/desktop/tablet for viewing our Zoom lecture and a smartphone for accessing Learning Catalytics to vote during class. Students in need of a laptop can have a faculty member request a long-term laptop checkout for them through our campus division of *Information Resources & Technology*. If you are in need of a laptop for your classes, please email me and I'll start the process. For emergency situations, students should have the Zoom app downloaded on their smartphone so they can use it to view lectures. In that case, they will not be able to access their student response systems for class voting and should send me a message during the Zoom session so I can give them the missed points.

Catalogue description: Introductory chemistry for students who plan to major in a scientific field. Appropriate for students desiring to prepare themselves for Chemistry 1A. Emphasizes chemical nomenclature and techniques of chemical problem solving. Topics covered include: dimensional analysis; conversions between measuring units; weight, mole and chemical equations; density; elementary gas laws; heat and temperature; elementary acid and base chemistry; oxidation and reduction; solutions. 3 hours lecture. **Prerequisite:** High school algebra and college algebra; sufficient performance on the college algebra diagnostic test, or equivalent. **Units:** 3.0

Who should take Chem 4: The goal of this class is to prepare you to succeed in Chem 1A or Chem 1E. If you need to take Chem 1A/1E for your major and you do not have the required content prerequisite (i.e. a passing grade in high school chemistry or a passing score on the Chem 1A diagnostic exam), then Chem 4 is the place for you! If you are not planning on taking Chem 1A/1E, please talk to me so we can clarify if Chem 4 is an appropriate course based on your academic goals. Chem 4 is not meant for allied health students, unless they are exercise science or dietetics special majors (since these majors require Chem 1A). Chem 4 is not intended for students who need Chem 6A or Chem 5.

Learning outcomes: To achieve the goal of preparing you for Chem 1A, you will be required to learn basic principles of chemistry, problem solving techniques, and the basic language and concepts of chemistry. Chem 4 will also provide you with the opportunity to develop study skills and attitudes to become more successful in future science classes. By the end of the semester, successful students will be able to…

- develop strong study skills that will serve as the foundation for success in future science courses.
- name and write the chemical formulae of ionic/molecular compounds, acids, and bases.
- appropriately use significant figures and scientific notation in measurements and calculations.
- convey an understanding of dimensional analysis, unit conversion, the metric system, and the general importance of the use of units in chemistry.
- write balanced chemical equations for various types of reactions, predict in what physical states the products and reactants will be found, and write ionic and net ionic equations.
- perform calculations related to the mole including molar mass calculations, mole-mole calculations, mole-mass calculations, mass-mass calculations, and other stoichiometric calculations.
- solve chemically related word problems.

Grading: Because the focus of Chem 4 is on content mastery and because competition for grades goes against the philosophy of team-work as practiced in this class, there will be no curving of grades. My goal is always to write exams that are fair to all students and that provide you with the opportunity to show how well you understand the material we have been learning. Your overall course grade percentage will be rounded to the tenths place and will be based on the following % format:

F = 0.0 – 59.9% / **D** = 60.0 – 69.9% / **C-** = 70.0 – 72.9% / **C** = 73.0 – 76.9% / **C+** = 77.0 – 79.9%
B- = 80.0 – 82.9% / **B** = 83.0 – 86.9% / **B+** = 87.0 – 89.9% / **A-** = 90.0 – 92.9% / **A** = 93.0 – 100.0%

These grade cutoffs are firm. For example, an 89.94% is not considered to be an "A-" because when rounded to the tenths place it would be 89.9%. An 89.95% or above, however, would round to 90.0% and would earn an "A-". Earning a "C" or better is required to move on to Chem 1A/1E.

Student grade percentages will be based on the following breakdown of points:

Assignment	Possible points
Homework (scaled to 50 pts)	50 pts
Clickers (scaled to 50 pts)	50 pts
3 Midterm Exams (100 pts each)	300 pts
Cumulative Final Exam (200 pts)	200 pts
	600 pts total

Updated homework and clicker grades will be posted before each exam on Canvas. Exam grades will be posted on Canvas immediately after each exam. You are automatically enrolled in the Canvas course and can login using your SacLink "user name" and "password".

To help alleviate course anxiety around testing and because everyone deserves a second chance, students who take part in the Commit to Study program will be allowed to drop their lowest grade from exams #1 - #3. For more information see the section on **Commit to Study** towards the end of the syllabus.

Students will not be penalized who become ill or are placed under quarantine during the COVID-19 pandemic. Please see the section on **Missed Assignments** below.

Key dates: The following are important dates for Chem 4. Additional key dates, including holidays are found on our "Lecture Schedule" handout on our class website.

- **Exam #1**: Wed, September 30; **Exam #2**: Fri, November 30; **Exam #3**: Fri, December 4.
- **Final Exam for the 8 am section**: Mon, December 14 from 8:00 – 10:00 am.
- **Final Exam for the 10 am section**: Fri, December 18 from 8:00 – 10:00 am.

On-line homework (*MasteringChemistry*): Homework is assigned daily throughout the semester and is due before the start of the next class. The on-line homework system *MasteringChemistry* will be used for this course. Access to *MasteringChemistry* is included in your *IncludEd* course fee. The points for your homework will be normalized to a total of 50 points at the end of the semester. For example, if you earn a total of 250 out of a possible 280 points, your homework grade would be (250/280) x 50 pts = 44.6 pts. There will be extra credit questions on several of the homework assignments.

On-line homework (*MasteringChemistry*) continued… In order to keep the amount of homework to a minimum I have divided each assignment into "optional" and "required". Most of the "required" questions are worth 1 point each, though some are worth 2 or 3 points if they are expected to take you longer to complete. If you are able to do all the "required" problems without any trouble then I don't want to give you extra homework to do. However, if you are struggling with the "required" problems, the "optional" problems are an important resource. It is up to you to determine if you are in good shape and, if not, to put in the extra time to complete the "optional" problems. All homework is available for review for the entire semester; so you can go back and redo homework for practice (though it won't change your grade). Students who miss a homework deadline can email me for an extension.

To get as much as possible out of your homework, it is important not to treat it as busy-work. Students who "Google" the answer are wasting the opportunity to learn from the homework**. Consistent and serious effort on homework is one of the most important factors determining your success in Chem 4.** For example, in a typical semester, I found that students who passed Chem 4 earned a nearly perfect average of 47/50 pts (94%) on their homework while students who did not pass Chem 4 earned, on average, 38/50 pts (76%). **Whenever you earn < 90% on a given homework assignment that is useful feedback to you that you should get help on that material during my office hours or during PAL office hours** (see more information about PAL towards the end of the syllabus).

It is recommended that students use Firefox or Chrome browsers when accessing MasteringChemistry. Access at: www.pearsonmylabandmastering.com/northamerica

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Clickers (*Learning Catalytics*): To maximize student engagement in class and to encourage retention of the course material, we will be using the cloud-based, student-response system, *Learning Catalytics*. Access to *Learning Catalytics* is included in your *IncludEd* course fee. Students can access *Learning Catalytics* to vote during lecture using any internet-enabled portable electronic device (phone, laptop, tablet).

Each day there will be several questions presented throughout lecture for students to work on and then vote for their answer. There will be questions that review the previous day's material (to motivate you to review previous lectures), questions that cover the assigned textbook reading for that day (to motivate you to complete the assigned reading before lecture), and questions that test your comprehension of topics as they are being discussed (to motivate you to pay attention in class). In order to encourage students to attend class and participate, student will earn 2 points for ever clicker question regardless of whether they get the answer correct or not. The points for your clicker responses will be normalized to a total of 50 points at the end of the semester. For example, if you earn a total of 110 out of a possible 130 points, your clicker grade would be (110/130) x 50 = 42.3 pts.

If for any reason you are present during our Zoom lecture, but unable to vote, please send me a message during lecture using the Zoom "chat" feature and I will give you back your missed clicker points.

Your combined homework and clicker grades count for as much as one whole exam. As with your homework grade, it is important to take your clicker grade seriously. Poor performance on the clicker questions on a given day is useful feedback to you that you should get help during my office hours or during PAL office hours (see more information below). *Learning Catalytics* can be accessed through the *MasteringChemistry* site or through: learningcatalytics.com

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Attendance: Missing class (or even being a few minutes late) can impact on your grade. Students who skip lecture miss out on clicker points and important information. In addition, lectures are used to help you focus your studies so that you know what I think is the most important material I want you to learn. Consider the Chem 4 data in the table below. The first column shows the number of classes a student missed during the whole semester. The second column shows what % of students with that attendance record passed the class. Many students might think that missing just 3 classes a semester is no big deal, but notice that only 50% of the students missing 3-5 classes ended up passing the class. Of the students missing 6 or more classes? Only 17% of them passed. Of course, perfect attendance doesn't guarantee that you'll pass the class (6% of students with perfect attendance didn't pass), but it is a crucial first step to success in Chem 4. All that being said, students will not be penalized who become ill or are placed under quarantine during the COVID-19 pandemic. Please see the next section on **Missed Assignments**.

# of missed classes	% who passed the course
0	94 %
1-2	73 %
3-5	50 %
≥ 6	17 %

Missed assignments: I appreciate that sometimes life, work, and other classes can get in the way of our learning goals in Chem 4. That has never been truer than during this difficult time with online classes and social isolation. However, it is still important that you build a strong foundation and really learn the material, so please keep me posted if you get behind and need help catching up.

- Because of the size of the class, no make-up exams will be given. Students who miss an exam will have the "zero" grade for their missed exam replaced with the % grade they earn on their final exam.
- Before each exam, I'll automatically give everyone credit for any late homework that they've completed.
- Students who are absent will normally earn 0 clicker points that day. However, students can have their absence excused and will then get those missed points back. Please just send me an email explaining why you missed class. It is expected that students who miss lecture will review the posted PowerPoint slides after class and seek help with any questions they have on the missed material.

Student resources for getting help: To be successful in Chem 4, you will likely need to schedule about 6 hours of time outside of class each week to work on chemistry material; this will include completing the assigned reading before lecture, reviewing your lecture notes and our posted PowerPoint slides, and completing homework assignments. I recommend that you schedule regular study time on your weekly calendar and treat is as you would any other important obligation. To help you budget your time, the Chem 4 website details the amount of time that each assignment and reading is expected to take; you'll see that after most lectures, you'll have roughly 2 hours of work to complete before coming to the next class.

Chem 4 does require a lot of work (it's College-level science, after all), but I know you are all smart enough and capable of passing. For many students though it will come down to putting in enough time and taking advantage of the available resources including sources of help.

In addition to the getting help during open student hours, the next page lists some great resources to help you succeed:

Student resources for getting help continued…. Help with chemistry:

- **PAL (peer assisted learning) sessions:** PALs are 1-unit activity sessions where you work in small, online groups on worksheets that I have written. Each virtual PAL session is led by a trained peer facilitator. PAL facilitators are not tutors, rather they are students who passed Chem 4 and are there to help you figure out how to be successful in the class. Time for all the PALs are posted on the Chem 4 website along with the actual PAL worksheets. Spaces in PALs are limited to 15 and are filled on a first-come, first-served basis. Information on how to join a PAL will be provided during the first week of lecture.

- **PAL office hours:** The PAL facilitators also have weekly virtual office hours for additional help. **All students, not just those in a PAL, are encouraged to take advantage of PAL office hours.** I will be posting PAL office hours on our class website as soon as they are finalized.

- **Peer and Academic Resource Center (PARC) tutoring:** PARC is a centralized academic support hub where students are united for the common goals of excellence and student success through peer-led and student-driven services. PARC provides tutors to help you with Chem 4 material. I will be posting PARC virtual tutoring hours for Chem 4 on our class website as soon as they are finalized.

Student resources for getting help continued…. Help with other issues that can impact student success:

- ***Commit to Study* peer mentoring:** This program pairs you up with another undergraduate who has been trained to help you reach your full potential by working with you to improve your time management and study skills. More information on the Commit to Study program can be found on the next page.

- **Hornet Learning Online 101***:* This interactive, 1-hour tutorial will help students get started using the technology associated with online classes. Content includes: Growth mindset, time management, technology readiness, Canvas navigation, and an interactive list of campus resources for Fall 2020. You can self-enroll to take this course here: https://csus.instructure.com/enroll/YCNYDP

- **Students with disabilities:** I am happy to work with you to accommodate your documented needs, so please discuss them with me either by email or during office hours early in the semester. Please refer to the following Services for Students with Disabilities website for more information.

- If you are experiencing **challenges with food, housing, financial or other unique circumstances** that are impacting your education, help is just a phone call or email away! The SacState CARES office provides case management support for any enrolled student. Email the CARES office (cares@csus.edu) to speak with a case manager about the resources available to you. Here is a link to the CARES site.

- **Student Health and Counseling Services** is committed to continuing to provide exceptional service to our campus community. Though many students may be away from campus, most services are offered using secure remote technology. Here is a link to the Student Health and Counseling Services site.

***Commit to Study* (C2S) peer mentoring:** The C2S program provides students with a safe, non-judgmental environment to work on their time management and study skills with their own personal peer mentor (an undergrad, just like you who knows what is like to be a stressed student and who is trained to help you reach your full potential).

C2S has been a valuable part of Chem 4 beginning in Spring 2019. Since then, nearly 300 students from Chem 4 have completed the C2S program. Of Chem 4 students completing C2S, 75% of them also passed Chem 4; of the Chem 4 students who did not complete C2S, only 35% of them passed Chem 4.

Everyone can benefit from C2S: If you are doing well, you'll learn how to fine-tune your study skills to be more efficient and earn A's in less time. If you're struggling in any subjects, you'll learn to leverage your strengths and identify areas for growth. Completing the C2S program also looks great on resumes or scholarship applications.

Students will be able to drop their lowest grade from exams #1 - #3 if they complete the C2S program. Students who would like to take advantage of this opportunity must make their first C2S appointment before taking Exam #1. Information about making a C2S appointment will be emailed to students early in the semester. Appointments will be accepted on a first-come, first-served basis and once we are full, we won't be able to take additional students. Our program fills up fast, so don't delay making your appointment once you get your email. All C2S meetings are virtual and will be carried out over Zoom. More info on C2S can be found on our class website and at: tinyurl.com/C2Sprogram

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Dropping Chem 4: The student ultimately has the responsibility of dropping courses.

- Students who do not officially withdraw from the course by the prescribed deadline and also fail to complete course requirements (so that it is not possible for normal evaluation of academic performance) will receive a grade of either "WU" (*Withdrawal Unauthorized*) or "F". For purposes of grade point average, a "WU" is equivalent to an "F". "WU" grades will not be assigned to students after Exam #2.
- *A grade of incomplete*, will only be assigned to students with a passing grade who have completed at least ¾ of the course (basically, they are just missing the final exam). Students will have a maximum of 1 year to make up the missing work or the grade will become an "F". Students must contact me to formally document the terms of their *incomplete*.
- For more information: https://catalog.csus.edu/academic-policies/

Information regarding course repeats: The *Academic Repeat Policy* and the *Financial Aid Repeat Policy* are separate**.** The *Academic Repeat Policy* allows students to repeat a course 2 times in an attempt to pass (a total of 3 attempts); however, the units associated with the repeated course will only count toward the student's financial aid eligibility twice. For more information: catalog.csus.edu/academic-policies

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The Hornet Honor Code is followed in this class including during Zoom lectures: "As proud members and representatives of the Sacramento State Hornet community, we commit ourselves to actively promoting honesty, integrity, respect and care for every person, ensuring a welcoming campus environment, and striving to help every member of our Hornet family feel a strong sense of belonging. As Hornets, we will:

- Promote an inclusive campus and community.
- Listen and respect each other's thoughts, interests, and views.
- Value diversity and learn from one another.
- Engage daily with mutual trust, care, and integrity.
- Support a culture of honor and adhere to campus policies for honesty, ethics, and conduct.
- Be proud to be Sac State Hornets.

Cheating and plagiarism: Students who are found copying or assisting other students in copying any graded exams or class assignments will be subject to receiving a zero on the exam or assignment. Please refer to the CSUS policy on Academic honesty: www.csus.edu/umanual/student/stu-100.htm

Before you resort to cheating, please consider the following:

- The goal of Chem 4 is to provide you with a strong foundation for Chem 1A/1E. Students who cheat in Chem 4 and do not learn the material are at high risk for struggling in Chem 1A/1E. It is better to repeat Chem 4 and really learn the material rather than cheat and not be prepared for later chemistry classes.
- When you cheat, you are stealing the hard work of others. You wouldn't steal someone else's wallet or cell phone, so why would you steal their intellectual effort?
- If you are struggling with Chem 4, there are a lot of people who want to help you out (me, PAL facilitators, Commit to Study peer mentors, your classmates…). You really can learn the material and do well in the class by putting in honest effort. We are all in this together and with all of the resources and people that are there to help you succeed, there's just no reason for anyone to cheat in Chem 4.
- Related to the previous bullet, I want you to be proud of yourself at the end of the semester. Chem 4 is a lot of hard work, which makes the pride you'll have in genuine success all that much sweeter!
- You risk getting caught and receiving a 0 on the exam or assignment.

Every semester, I have several students who accept that they are not prepared to move on to Chem 1A or 1E and they fail Chem 4 on their own merit. They then come back the next semester and repeat Chem 4; they change their study skills and come see me a lot for help. When they pass Chem 4 the second time they know they really earned it and they are doubly proud of their effort and growth (and I'm doubly proud too!)

Please note that all incidents of academic misconduct must be reported to the Office of Student Conduct. The Sacramento State Academic Honesty Policy (STU-0100) provides faculty with two options for reporting. A Notice of Action report allows an instructor to record academic dishonesty in the conduct records without administrative discipline (except when a student has a previous record of academic dishonesty). A Disciplinary Referral is a request for the student conduct administrator to investigate and/or adjudicate academic misconduct.

The instructor reserves the right to make changes to the syllabus when deemed necessary for the success of the class. In the event the instructor is not available during the semester for whatever reason, students will be contacted and advised how the course will proceed. This may include a change in instructor and/or modality.