



College of Arts & Sciences  
General Chemistry I - CHEM 1311 Syllabus

**Instructor:** Dr. Yulun Han  
**Office:** STEM 311J  
**Office Hours:** Th 11:00 am – 1:00 pm  
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**Class Hours:** TR 9:30-10:45 am  
**Class Location:** STEM 161  
**Phone:** 210-784-2674

### Course Materials

**Access code:** Your homework and e-text subscription are included with this course. To obtain your access code, follow the BryteWave link in blackboard. Alternatively, follow the instructions sent by the bookstore (search for BryteWave in your inbox).

**Homework:** Mastering Chemistry is required. To access it through blackboard, go to the homework folder. Click on the first assignment, which will prompt you to link an account to your blackboard course. Log in or create an account if it is the first time using Mastering. Use the access code described above. If there are any issues obtaining your access code, you can get a 2-week temporary access while we sort your code with the bookstore. *To see your points once you start working on problems, click on mastering scores in the blackboard homework folder.*

**Textbook:** Chemistry, A Molecular Approach by Nivaldo J. Tro (6th ed). The e-book is included with this course. To access your book, please link your account to blackboard as explained above first. Then click on the textbook folder in blackboard followed by Pearson etext.

**Calculator:** Scientific calculators are required for this course. Only the use of models without data storage capabilities are approved for exams (i.e. no graphing calculators). If you are unfamiliar with scientific calculators, I will show how to use model TI-30Xa in class. If you choose any other model, you are responsible to learn how to use it on your own. TI-30Xa is about \$11 in Amazon and Walmart.

### Course Description

The first semester of a two-semester sequence, this course introduces many chemical concepts, problems, and calculations. Principles and quantitative relationships in chemistry that will be introduced include stoichiometry, chemical equilibrium, acid-base chemistry, thermochemistry, rates and mechanisms of reactions, changes of state, solution behavior, atomic structure, periodic relationships, and chemical bonding. Prerequisite: MATH 1314 or equivalent. Corequisite: CHEM 1111 (Laboratory).

### Learning Objectives

By the end of this course students will be able to:

1. Identify the fundamental units of the SI system, perform dimensional analysis calculations, gain conceptual understanding of the mole, explain how matter is organized and classified as well as distinguish between kinetic and potential energy.
2. Apply the scientific method as a strategy to solve problems through science and creativity.
3. Define and explain Dalton's atomic theory and describe the structure of an atom.

4. Describe and explain the properties of electromagnetic radiation, the photoelectric effect, the Bohr model and use the quantum mechanical model to describe the structure of an atom.
5. Utilize the periodic table to make predictions as to how elements react to form matter based on their properties. In addition the student will be able to use the Aufbau principle and Hund's rule to determine the electronic configuration of an atom.
6. Demonstrate their understanding of basic facts, principles, theories, and methods of modern science as well as use general chemistry concepts and theories to solve complex multi-variable chemical problems.
7. Describe the fundamental properties of chemical bonds, perform lattice energy calculations, draw Lewis structures with possible resonance structures and name simple compounds.
8. Utilize the VSEPR model to predict molecular structure the properties of a molecule, identify molecular orbitals according to shape and energy, calculate bond order, predict paramagnetism and use both the molecular orbital and delocalized electron models to describe resonance in molecules.
9. Calculate percent composition, determine molecular and empirical formulas, balance chemical reactions, apply stoichiometry to solve limiting reactant problems and calculate percent yield.
10. Identify weak, strong and nonelectrolytes, calculate the amount of mass product formed in precipitation reactions, determine the amount of titrant required for a neutralization reaction, and specifically describe how to determine the amount of analyte using volumetric analysis and balance redox reactions.
11. Perform enthalpy change calculations for a given reaction, utilize Hess law to determine the enthalpy formation for a compound, define and use heat capacity to perform calorimetry calculations, identify exothermic and endothermic reaction and predict how temperature affects such reactions.
12. Perform calculations using the ideal gas law and describe why chemist modify the ideal gas equation to describe real gas behavior.
13. Identify the types of intermolecular forces and describe how they affect the properties of liquid solutions, describe the structure and types of solids, explain using calculations how different the parameters affect vapor pressure and identify the phase present along with specific (freezing, critical, boiling etc.) points given a phase diagram.
14. Express and calculate solution composition using various methods, calculate the enthalpy of solution and hydration, describe the factors that affect solubility, use Raoult's law to calculate the vapor pressure of a solution and determine the molar mass of a solute using the boiling point, freezing point or osmotic pressure of a solution. The student will also be able to predict how the colligative properties of electrolyte solution changed based by using the van't Hoff factor.

**Communication:** The best way to contact instructors is via email. All correspondence between professors and students must occur via Texas A&M University - San Antonio email accounts. Students are expected to access Blackboard regularly for updates on the course, announcements, and other course materials. All students are strongly encouraged to come to office hours or make appointments at other times to discuss course material and ask questions. Discussions concerning grading/grades will not be addressed through email and will only be discussed during office hours or scheduled appointments.

**Attendance Policy:** All students are expected to attend lecture and actively engage in class discussion, activities, and online assignments. Attendance will be monitored and can be used to make decisions on cases of borderline grades. If you are absent, you are responsible for the material covered and are expected to get notes, announcements and any other material from another student in the class. Absences will be excused if due to illness (medical excuse), death of a close family member, religious holiday (please inform instructor), official university activity or cancellation of classes, military duties, pregnancy & related conditions and participation in legal proceedings. Excessive absences (more than 3)

and tardiness will not be tolerated. Accumulation of more than three unexcused absences will result in the student being dropped from the class or in one letter lecture grade decrease at the discretion of the instructor.

**Conduct and Behavior:** My goal is to create a safe and engaging learning environment. Class disruptions are unacceptable, asking questions to clarify material during class does not qualify as a disruption and is encouraged. If you disrupt the class, you will be asked to leave for the day. Technology in the classroom may be a great resource but it can also hinder the learning process. Therefore, students are not allowed to wear ear buds and headphones and/or use cellphones during class. All cellphones must be on vibrate or turned off for the entirety of the class/lab period. In case of an emergency call, leave the room before answering the call. Texting during class is absolutely prohibited. The use of laptops, tablets or other devices for non-class related activities is not allowed. Electronic Devices during Exams. All electronic devices must be completely stored during exams and quizzes. Academic misconduct and attempts to cheat during the exam will be pursued according to Texas A&M-San Antonio code of conduct policy. You are discouraged from leaving the room during an exam. If you need to use the restroom, ask and leave all electronic devices with the instructor. Aggressive Behavior. The academic environment is meant for discussing ideas in a respectful manner. Tolerance, empathy, respect, and courtesy help us create a safe environment. Abusive and aggressive behavior will result in contacting the University Police Department and immediate removal of the student from the classroom. Visitors. Only students enrolled in the course are allowed in the classroom. No visitors are allowed. **IMPORTANT.** Each student receives this information during the first lecture. It is your responsibility to read this material and be familiar with the course content, procedures, and grading.

#### Tentative schedule\*

Week	Week of	Topic	Assignment due
1	Jan 20	Course Syllabus/Ch 1	
2	Jan 27	Ch 1/2	HW1
3	Feb 3	Ch 2/3	HW2
4	Feb 10	Ch 3/4	<b>Exam 1; HW3</b>
5	Feb 17	Ch 4	
6	Feb 24	Ch 4/5	HW4
7	Mar 3	Ch 5/6	HW5
8	Mar 10		Spring break-no classes
9	Mar 17	Ch 6/7	<b>Exam 2; HW6</b>
10	Mar 24	Ch 7	
11	Mar 31	Ch 8	HW7
12	Apr 7	Ch 8/9	<b>Exam 3; HW 8</b>
13	Apr 14	Ch 9	HW9
14	Apr 21	Ch 10	HW10
15	Apr 28	Ch 11 (Dec 7 – Last day of class)	<b>Exam 4</b>
16	May 7-13	<b>All</b>	Final- Cumulative. ACS multiple choice test DATE-TBD Final Exam grade will be curved

**\*Note:** Subject to change (Dates, topics, homework and exam coverage are tentative. The instructor reserves the right to make changes as deemed necessary.) Please check your course announcement on blackboard regularly.

**Grading:** Your course grade will be determined by five 100-point exams (four regular exams and one final exam) and chapter-specific homework assignments, each worth 20 points. These are the only opportunities for you to earn points throughout the semester.

Exams: 5 x 100 points each = 500

Homework: 10 chapters x 20 points per chapter = 200

% of Total Points:  $\left(\frac{\text{You total points}}{700}\right) \times 100$

All homework/exam grades will be posted to Blackboard. However, course percentages, letter grades, etc. are not to be considered as official and students should use caution when using those to evaluate overall course grades. To calculate your grade, use the equation above. Using that equation, letter grades will be determined as:

Letter Grades:	A:	90.0 - 100%
	B:	80.0 - 89.9%
	C:	70.0 - 79.9%
	D:	60.0 - 69.9%
	F:	0 - 59.9%

**Note:** I will only discuss your grade in person and only with you. I will not discuss your grade through email, by phone call, etc.

**Exams:** If you miss a test due to illness, you must provide a doctor's note to the dean of students and notify the instructor immediately, within 24 hrs of the test date. You are allowed one make-up test due to illness. **Tests will be taken in-person when you are able to return to campus.** Should you miss an exam for any other reason, the final exam score will be used for your missed exam. Should you miss two or more exams via an unexcused absence a grade of FA will be assigned. Should you have a question concerning the way that your examination was graded, or if you think that there was an error in calculation the exam score, then it is your responsibility to bring the matter to the attention of the instructor when you pick up your test. Corrections will not be granted after you leave the office. No extra examination time will be given; the only time that the students must work on the examination is the allotted time.

**Homework:** All homework will be assigned via Mastering chemistry which is available through blackboard. *Homework sets will be due by Sunday evening of the week in which we complete the chapter.*

### IMPORTANT POLICIES AND RESOURCES

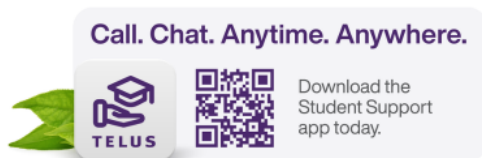
Academic Accommodations for Individuals with Disabilities: Texas A&M University-San Antonio is committed to providing all students with reasonable access to learning opportunities and accommodations in accordance with The Americans with Disabilities Act, as amended, and Section 504 of the Rehabilitation Act. If you experience barriers to your education due to a disability or think you may have a disability, Disability Support Services is located in the Central Academic Building, Suite 210. You can also contact us via phone at (210) 784-1335, visit us <https://www.tamusa.edu/Disability-Support-Services/index.html> or email us at [dss@tamusa.edu](mailto:dss@tamusa.edu). Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All

students are encouraged to discuss their disability-related needs with Disability Support Services and their instructors as soon as possible.

Academic Learning Center: The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing [tutoring@tamusa.edu](mailto:tutoring@tamusa.edu), calling (210) 784-1307, or visiting the Central Academic Building, room 202.

Counseling/Mental Health Resources: As a college student, there may be times when personal stressors interfere with your academic performance and negatively impact your daily functioning. If you are experiencing emotional difficulties or mental health concerns, support is available to you through the Student Counseling Center (SCC). To schedule an appointment, call 210-784-1331 or visit Madla 120. All mental health services provided by the SCC are free and confidential (as the law allows). The Student Counseling Center provides brief individual and group therapy, crisis intervention, consultation, case management, and prevention services. For more information on SCC services visit [tamusa.edu/studentcounseling](http://tamusa.edu/studentcounseling)

*Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2'). Additionally, the TELUS Student Support App provides a variety of mental health resources to including support for in the moment distress, an anonymous peer to peer support network, mental health screenings, podcasts, and articles to improve your mental wellbeing.*



Emergency Preparedness: JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email with instructions and updates. To register or update your information visit: <https://tamusa.bbcportal.com/>.

More information about Emergency Operations Plan and the Emergency Action Plan can be found here: <https://www.tamusa.edu/about-us/emergency-management/>.

Download the SafeZone App (<https://safezoneapp.com/>) for emergencies or call (210) 784-1911. Non-Emergency (210) 784-1900.

Financial Aid and Verification of Attendance: According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Any student receiving federal financial aid who does not attend by the census date will have their financial aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester, a Care report will be submitted, and you will possibly be dropped from the class. Your financial aid may have to be recalculated and a portion of your federal aid may have to be returned to the DoE.

Writing, Language, and Digital Composing Center: The Writing, Language, and Digital Composing Center supports graduate and undergraduate students in all three colleges as well as faculty and staff. Tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Our language tutors support students enrolled in Spanish courses and students composing in Spanish for any assignment. Our digital studio tutors support students working on digital projects such as eportfolios, class presentations, or other digital multimedia projects. Students can schedule appointments through JagWire under the Student Services tab. Click on “Writing, Language, and Digital Composing Center” to make your appointment. The Center offers face-to-face, synchronous online, and asynchronous digital appointments. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at <https://www.tamusa.edu/academics/>.

Meeting Basic Needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to submit a CARE referral (<https://www.tamusa.edu/university-policies/Student-Rights-and-Responsibilities/file-a-report.html>) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to direct you to available resources.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to visit the Office of Military Affairs for any question involving federal or state VA Education Benefits. Visit the Patriots’ Casa building, room 202, or to contact the Office of Military Affairs with any questions at [military.va@tamusa.edu](mailto:military.va@tamusa.edu) or (210)784-1397.

Religious Observances: Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or course work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

The Six-Drop Rule: Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student’s GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as “F” grades and will impact the student’s GPA.

Statement of Harassment and Discrimination: Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equal opportunity, and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, gender identity, gender expression, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Texas A&M University-San Antonio faculty are committed to providing a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, know that help and support are available. A&M-San Antonio's Title IX Coordinator can support those impacted by such conduct in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the Title IX Coordinator. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and trained victim advocates) are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment, sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator ([titleix@tamusa.edu](mailto:titleix@tamusa.edu), 210-784-2061, CAB 439K). If you wish to speak to a confidential employee who does not have this reporting requirement, you can contact the Student Counseling Center at (210) 784-1331 or visit them in Madla 120.

Pregnant/Parenting Students: Texas A&M-San Antonio does not require a pregnant or parenting student, solely because of that status or issues related to that status, to (1) take a leave of absence or withdraw from their degree or certificate program; (2) limit the student's studies; (3) participate in an alternative program; (4) change the student's major, degree, or certificate program; or (5) refrain from joining or cease participating in any course, activity, or program at the University. The university will provide such reasonable accommodations to pregnant students as would be provided to a student with a temporary medical condition that are related to the health and safety of the student and the student's unborn child. These could include maintaining a safe distance from substances, areas, and activities known to be hazardous to pregnant individuals and their unborn child; excused absences because of illness or medical appointments; modified due dates for assignments; rescheduled tests/exams; taking a leave of absence; and being provided access to instructional materials and video recordings of lectures for excused absences, if these would be provided to any other student with an excused absence. Pregnant/parenting students are encouraged to contact the Title IX Coordinator with any questions or concerns related to their status ([titleix@tamusa.edu](mailto:titleix@tamusa.edu); 210-784-2061; CAB 439K). Texas A&M-San Antonio has also designated the Title IX Coordinator as the liaison officer for current or incoming students who are the parent or guardian of a child younger than 18 years of age. The Title IX Coordinator can provide students with information regarding support services and other resources.

Students' Rights and Responsibilities: The following statement of students' rights and responsibilities is intended to reflect the philosophical base upon which University Student Rules are built. This philosophy acknowledges the existence of both rights and responsibilities, which is inherent to an individual not only as a student at Texas A&M University-San Antonio but also as a citizen of this country.

#### *Students' Rights*

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no University rule or administrative rule that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the University, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, gender identity, gender expression, and pregnancy/parenting or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.



4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

#### *Students' Responsibilities*

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty, and administration.
2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, [Student Code of Conduct](#), on our website, and University Catalog, and to comply with them, as well as with federal, state, and local laws.
3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire University community.
4. A student has the responsibility to recognize the University's obligation to provide a safe environment for learning.
5. A student has the responsibility to check their university email for any updates or official university notifications.

We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation, or disability. Conduct that infringes on the rights of another individual will not be tolerated.

Students are expected to exhibit a high level of honesty and integrity in their pursuit of higher education. Students engaging in an act that violates the standards of academic integrity will find themselves facing academic and/or disciplinary sanctions. Academic misconduct is any act, or attempt, which gives an unfair advantage to the student. Additionally, any behavior specifically prohibited by a faculty member in the course syllabus or class discussion may be considered as academic misconduct. For more information on academic misconduct policies and procedures please review the Student Code of Conduct (<https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/documents/Student-Handbook-2022-23.pdf>) or visit the resources available in the OSRR website (<https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/academic-integrity.html>).

#### **Use of Generative AI Permitted Under Some Circumstances or With Explicit Permission**

There are situations and contexts within this course where you may be asked to use artificial intelligence (AI) tools to explore how they can be used. Outside of those circumstances, you should not use AI tools to generate content (text, video, audio, images) that will end up in any student work (assignments, activities, discussion responses, etc.) that is part of your evaluation in this course. Any student work submitted using AI tools should clearly indicate with attribution what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, students should reach out to their instructor for clarification before submitting work for grading. Use of AI-generated content without the instructor's permission and/or proper attribution in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

NOTE: Guidance for how to cite AI-generators, like ChatGPT, can be found here

<https://apastyle.apa.org/blog/how-to-cite-chatgpt>

#### Important Dates:

Jan 21	First day of class
April 21	Last day to drop with an automatic "W"
April 28	Last day to drop a course or withdraw from the University
May 5	Last day of classes



May 7-13                      Final exams

*The complete academic calendar is available online: <https://www.tamusa.edu/academics/academic-calendar/index.html>*