

College of Arts & Sciences

General Chemistry I Recitation- CHEM 1011 Syllabus

Instructor: Dr. Mohamed Hassan**Email:** mhassan@tamusa.edu**Class Location:** SciTech 279 on Monday, SciTech 165 on Wednesday, SciTech 223 on Friday**Class Hours:** MWF 2:00-2:50 pm**Office Hours:** W 11:00 am -1:00 pm**Office:** STEM 311D

F 11:00 am – 12:00 pm & 3:00 pm – 4:00 pm

Recitation Session Format (50 minutes)

- **Interactive Review (5-7 mins):** A brief, participatory summary of the key topics from the previous lecture.
- **Conceptual Clarification (10-15 mins):** Addressing challenging concepts identified by student questions.
- **Guided Group Work (20-25 mins):** Students will work in small groups to solve assigned problems, with the instructor circulating to provide guidance and prompt critical thinking.
- **Group Debrief & Solution Review (5-10 mins):** We will reconvene as a class to review solutions, address common challenges, and solidify understanding.

Textbook: Chemistry, A Molecular Approach by Nivaldo J. Tro (6th ed). The e-book will be 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 e-text.

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. Here is a video of how to use this calculator:

<https://www.youtube.com/watch?v=jVunPP6nRrE>

Notebook paper or notebook: for notes/practice problems.

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 me is through email, mhassan@tamusa.edu. All correspondence between professors and students must occur via university email accounts. You must have Jaguar email account ready and working. If it is not working, contact the help desk at sahelp@tamusa.tamus.edu or at 210-784-4357. Students are expected to access Blackboard 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 answer questions.

Attendance Policy: All students are expected to attend recitation sessions and actively engage in class discussion, activities, and 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. 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.

Grading. Your attendance and contribution in the recitation sessions will count for 100 points of the total course grade in Chem 1311.

The letter grades will be assigned based on the following distribution:

Letter Grades:	A	B	C	D	E
% of Total Points	90.00 - 100%	80.00 - 89.99%	70.00 - 79.99%	60.00 - 69.99%	0 - 59.99%

Tentative Recitation Schedule*

Date	Chapter	Sections	Topics Covered "Guided Group Work"
Aug 25			Introduction
Aug 27			General discussion of course content
Aug 29	1	1.1, 1.2, 1.3	Atoms and Molecules, the scientific approach to knowledge, Classification of matter
Sep 1			Labor Day
Sep 3	1	1.4, 1.7	Physical and chemical changes, properties, and significant figures
Sep 5	1	1.6, 1.8	Units of measurement, Unit conversions, density
Sep 8	1	1.8	Unit conversions- continued
Sep 10	2	2.1, 2.2, 2.3, 2.4, 2.5	The atom, modern atomic theory and laws, electrons, atom structure
Sep 12	2	2.6, 2.7	Subatomic particles, isotopes, Periodic Law and table
Sep 15	2, 3	2.8, 2.9, 3.2	Atomic mass, Molar mass and Avogadro's number, Chemical bonds
Sep 17	3	3.3, 3.4	Chemical bonds, chemical formulas, Elements and Compounds.
Sep 19	3	3.5	Ionic compounds
Sep 22	3	3.5	Ionic compounds continued
Sep 24			Test 1 Specific chapters/sections will be announced in class
Sep 26	3	3.6	Molecular compounds and acids: Formulas and names
Sep 29	3	3.8	Formula mass and the mole concept
Oct 1	3	3.9, 3.10	Composition of compounds, Empirical formula
Oct 3	4	4.2, 4.3	Writing and balancing chemical equations, Stoichiometry intro
Oct 6	4	4.3, 4.4	Chemical reactions, Stoichiometry: Limiting reagent, theoretical yield, % yield.
Oct 8	4	4.3, 4.4, 4.5	Chemical reactions, Stoichiometry: Limiting reagent, theoretical yield, % yield. Examples of chemical reactions
Oct 10	5	5.2	Molarity and Solution dilution
Oct 13	5	5.3	Solution stoichiometry
Oct 15			Test 2 Specific chapters/sections will be announced in class
Oct 17	5	5.4, 5.5	Types of solution and solubility, Precipitation reactions
Oct 20	5	5.7, 5.8, 5.9	acid-base, titrations, gas-evolution, and redox reactions
Oct 22	6	6.2, 6.3, 6.4	Pressure, Simple gas laws, The ideal gas law
Oct 24	6	6.5, 6.6	Applications, Mixture of gases

Date	Chapter	Sections	Topics Covered "Guided Group Work"
Oct 27	6	6.7, 6.8, 6.9, 6.10	Stoichiometry, Kinetic molecular theory, Real gases, temperature and molecular velocities, effusion and diffusion
Oct 29	7	7.2, 7.3	Thermochemistry Introduction
Oct 31	7	7.4	Heat and Work
Nov 3	7	7.5, 7.6	Calorimetry, enthalpy
Nov 5	7	7.8, 7.9	Enthalpy, Hess's law, standard enthalpies of formation
Nov 7	8	8.2, 8.3	Nature of light, Atomic spectroscopy and Bohr
Nov 10			Test 3 Specific chapters/sections will be announced in class
Nov 12	8	8.5, 8.6	Quantum mechanics, Shapes of orbitals Last day to drop with an automatic W
Nov 14	9	9.4, 9.5	Valence electrons, power of quantum-mechanical model Last day to drop with a W
Nov 17	9	9.2, 9.3	Periodic table, electron configurations
Nov 19	9	9.6, 9.7, 9.8, 9.9	periodic trends, Ions, electron affinity, electronegativity, periodic chemical behavior
Nov 21	10	10.2, 10.3, 10.5	Types of bonds, valence electrons, Lewis structures
Nov 24			Study Day-No Class
Nov 26			Thanksgiving Holiday
Nov 28	10	10.7, 10.8, 10.9	Lewis structures, Resonance, Exceptions
Dec 1	10	10.7, 10.8, 10.9	Lewis structures, Resonance, Exceptions (Cont'd)
Dec 3	10, 11	11.2, 11.3, 11.4 10.6, 11.5	VSEPR, lone pairs, electronegativity and bond polarity, molecular shape and polarity
Dec 6-12	All	All	Final- Cumulative. ACS multiple choice test

* Dates, topics and exam coverage are tentative. The instructor reserves the right to make changes as deemed necessary.

Chemistry tutor: Tutoring can be obtained at the academic learning center. To book an appointment, go to blackboard and click on *brainfuse live tutoring*. Under tutor match, select *science* as a *topic* and CHEM 1311 under subject. Click *Schedule* and choose your preferred date and time. Complete the require fields and select submit.

Visit the academic learning center website for more information: <https://www.tamusa.edu/student-resources/Academic-Success-Center/tutoring-services/index.html>

Follow the academic learning center on Instagram: @tamusa_alc

Conduct and Behavior: As an instructor 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 encourage. If you are disrupting the class, you will be asked to leave for the day. Technology in the classroom may be a great a 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.

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. 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 as soon as possible.

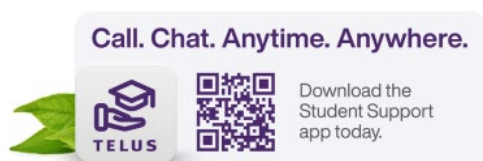
Academic Learning Center: The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu, 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 <http://tamusa.edu/studentcounseling>

Crisis support is available 24/7 by calling the SCC at 210-784-1331.

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. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended by the published Census Date (the first week of class). Any student receiving federal financial aid who does not attend prior to the published Census Date (the first week of class) will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

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 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 with 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 on our campus and within our state, nation, and world. All decisions and actions involving students and employees are to 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, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the University's Civil Rights Officer at 210-784-2061 or titleix@tamusa.edu.

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 based on sex, 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 sex-based misconduct, the faculty member must share that information with the university's Title IX Coordinator (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 modifications to pregnant students as would be provided to a student with 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; 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.

Young Jaguars: can support parenting students with daycare who meet this criteria: Must be enrolled in classes at TAMUSA in the current semester. Must be Pell eligible or a single parent. They serve children ages 3 to 12-years-old. Children must be enrolled in Pre-K-3 through 6th grade. youngjaguars@tamusa.edu (210) 784-2636

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 students' 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>).

AI Policy: CHEM 1311 assumes that all work submitted by students will be generated by the students themselves, working individually or in groups. Students should not have another person/entity do the writing of any portion of an assignment for them, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. Use of any AI-generated content in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

Important Dates: Fall 2025 Regular 16-Week Session

Date	Event
August 25	First day of class
September 1	Labor Day Holiday – No classes
September 10	Census Date
November 14	Last day to drop with an automatic “W”
November 25	Last day to withdraw from the University
November 26	Study Day – No classes
November 27-29	Thanksgiving Holiday – No classes
December 4	Last day of classes
December 5	Study Day – No classes
December 6-12	Final exams
December 16	Commencement

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