

College of Arts & Sciences  
**General Chemistry II – CHEM 1312 Syllabus**

**Instructor:** Dr. Alexandra Wolfer

**Class Hours:** MWF 9:00 – 9:50 AM

**Email:** [awolfer@tamusa.edu](mailto:awolfer@tamusa.edu)

**Class Location:**

**Office:** STEC 311

**Office Hours:** TW 11:00 AM – 1:00 PM

**Course Materials**

**Textbook:** Chemistry, A Molecular Approach by Nivaldo J. Tro (6<sup>th</sup> Edition)

**Homework:** Mastering Chemistry

**Recitation Worksheets:** Given to you in class

**Calculator:** Scientific calculators are required for this course. Only the use of models without data storage capabilities are approved for exams: for example, TI-30Xa, TI-30X, Casio FX-300ES Plus, or Casio FX-300MS.

**Course Description**

The second semester of a two-semester sequence, this course introduces many chemical concepts, problems, and calculations that build upon what was covered in CHEM 1311. Principles and quantitative relationships in chemistry that will be introduced include stoichiometry, chemical equilibrium, acid-base chemistry, thermochemistry, rate and mechanisms of reactions, changes of state, solution behavior, atomic structure, periodic relationships, and chemical bonding.

**Prerequisite:** CHEM 1311 and CHEM 1111 with a grade of “C” or better.

**Corequisite:** CHEM 1112 (Laboratory).

**Learning Objectives**

1. Identify different types of intermolecular forces present in a molecule and rank them by strength.
2. Understand phase changes, phase diagrams and heat of vaporization and apply those concepts to predict states of matter at different environmental conditions.
3. Calculate concentrations of solutions, convert between concentration units and determine how concentration affects boiling point, freezing point, vapor pressure and osmotic pressure.
4. Write solubility equilibrium expressions and calculate solubility product constants and explain how different parameters affect solubility.

5. Demonstrate their understanding of chemical kinetics by determining and analyzing reaction rate laws, identifying order of reaction and determining what factors affect reaction rates.
6. Write equilibrium constant expressions for chemical reactions as well as calculate the value of the equilibrium constant and the concentration of reactants and products at equilibrium.
7. Define and identify strong and weak acids and bases as well as make dissociation predictions based on their structure.
8. Solve acid-base problems, calculate pH and explain acid-base properties of oxides.
9. Develop a procedure to make a buffer given a specific pH.
10. Construct a titration curve for an acid-base couple and determine the chemical species present during various points of the titration.
11. Express the three laws of thermodynamics and interrelate the enthalpy, free energy and equilibrium constant for the reaction
12. Balance redox reactions, calculate cell potentials and make quantitative calculations based on electrolysis.
13. Identify modes of radioactive decay, balance nuclear reactions, calculate energy changes associated with nuclear reactions and explain, based on the kinetics of nuclear processes, how quantities of radioactive elements relate with time.

### **Student Responsibilities**

**Communication:** The best way to contact me is through email, [awolfer@tamusa.edu](mailto:awolfer@tamusa.edu). All correspondence between professors and students must occur via University email accounts. You must have your Jaguar email account ready and working. If it is not working, contact the help desk at [sahelp@tamusa.tamus.edu](mailto: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 lecture and actively engage in class discussion, activities, and online assignments. Students are allowed three absences, regardless of excuse. Should a student exceed the three-absence limit, they may be at risk of an Instructor Drop. 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, death of a close family member, religious holiday (see Religious Observances in Important Policies and Resources), official university activity or cancellation of classes, military duties, pregnancy & related conditions, and participation in legal proceedings.

**Conduct and Behavior:** As an instructor, my goal and duty 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 are disrupting the class, you may 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 or headphones without a DSS accommodation. Cellphone use is not permitted unless specifically requested for a demonstration. All cellphones must be on vibrate or turned off for the entirety of the class. In case of an emergency call, please leave the room before answering the call. Texting during class is prohibited. The use of laptops, tablets, or other devices for non-class related activities is not allowed.

**Behavior During Exams:** All electronic devices, including phones, tablets, and smart watches, must be completely stored during exams and quizzes. This does not include approved scientific calculators. 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. Non-religious headwear must be removed.

**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.

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.

### Grading

Your final grade will be assigned based on your performance in these areas:

Mastering Homework	10%
Recitation Worksheets	10%
Quizzes	15%
Exams (3)	45%
Final Exam	20%

Letter Grade	A	B	C	D	F
Total Points	100-89.5%	89.4-79.5%	79.4-69.5%	69.5-59.5%	0-59.4%

**Exams:** There will be three exams, each worth 15% of your final grade. The exams will be held during class and will be made up of 25 multiple choice questions. Students will need to bring their own pencil and calculator, as they will not be provided. If you know you will not be available for an exam, you may schedule a makeup exam. Should you miss two or more exams via an unexcused absence, a grade of FA will be assigned.

**Homework:** All homework will be assigned via Mastering chemistry, which is available through Blackboard. Homework will be assigned after each class period in which there is not an exam and will be due the next day. 5 points will be deducted from your final score for each day the assignment is turned in late.

**Recitation Worksheets:** Recitations are additional class time outside of the lecture during which students will work in a group setting on practice problems from a provided worksheet, which will cover the previous week's lectures. Worksheets will be turned in at the end of the recitation period and graded for completeness and accuracy. Attendance is mandatory.

**Quizzes:** At the end of each chapter, there will be an online, 10-question quiz on Mastering, covering the lecture material. Quizzes will be assigned after the final class period for the chapter and will be due one week later. Late submissions will not be accepted for quizzes. Each quiz also has a follow-up assignment for students who did not pass the quiz. This assignment is worth 0 points, but is good practice for the exam. The follow-up will be due two days after the quiz and will review missed learning concepts.

### Lecture Schedule

Schedule is tentative and subject to change. The instructor reserves the right to make changes as deemed necessary.

Week	Day	Topic	Exams	Key Dates
1	Aug 25	Introduction/Syllabus		
	Aug 27	Ch 12		
	Aug 29	12		
2	Sep 1	<b>NO CLASS</b>		<b>LABOR DAY</b>
	Sep 3	12		
	Sep 5	12		
3	Sep 8	Ch 14		
	Sep 10	14		<b>CENSUS DATE</b>
	Sep 12	14		
4	Sep 15	14		
	Sep 17	Ch 15		
	Sep 19	15		
5	Sep 22	15		
	Sep 24		<b>Exam 1</b>	
	Sep 26	Ch 16		
6	Sep 29	16		
	Oct 1	16		
	Oct 3	Ch 17		
7	Oct 6	17		
	Oct 8	17		
	Oct 10	17		

8	Oct 13	17		
	Oct 15	Ch 18		
	Oct 17	18		
9	Oct 20	18		
	Oct 22	18		
	Oct 24		<b>Exam 2</b>	
10	Oct 27	Ch 19		
	Oct 29	19		
	Oct 31	19		
11	Nov 3	19		
	Nov 5	Ch 20		
	Nov 7	20		
12	Nov 10	20		
	Nov 12	20		
	Nov 14	Ch 21		<b>LAST DAY TO DROP WITH "W"</b>
13	Nov 17	21		
	Nov 19	21		
	Nov 21	21		
14	Nov 24	Ch 13		
	Nov 26	<b>NO CLASS</b>		<b>STUDY DAY</b>
	Nov 28	<b>NO CLASS</b>		<b>THANKSGIVING HOLIDAY</b>
15	Dec 1	Ch 13		
	Dec 3		<b>Exam 3</b>	<b>LAST CLASS DAY</b>
	Dec 5			<b>STUDY DAY</b>
16	Dec 8-12			<b>FINAL EXAM</b>

## TAMUSA 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 at <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.

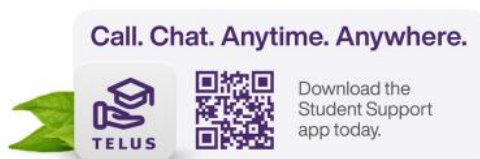
Academic Learning Center: The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *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](https://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. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend 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](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>).

AI policy: This class 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

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>