

CHEM 1311-DM1

General Chemistry

Winter, 2021



Instructors:

Dr. Gregory Smith

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Office: CAV 207A

Office Hours: By appointment, just contact me and we'll make a time.

CHEM 1311 — GENERAL CHEMISTRY LECTURE CLASS

Lecture Class Meeting Times

Sec	Days	Time	Instructor	Location
DM1	MTWRF	10:00 am-12:50 pm	Dr. Smith	ONLINE

Required Texts and Materials

- **Textbook and ALEKS online homework [Both Required]:**
Paul Flowers, Klaus Theopold, Richard Langley, and William R. Robinson,
Chemistry 2e (2nd edition). <https://openstax.org/details/books/chemistry-2e>
Purchasing Options:
 1. Textbook – FREE!
 2. ALEKS – McGraw-Hill; <https://www.aleks.com>
- **Respondus Lockdown & Respondus Monitor** Make sure that your computer/laptop is compatible with Respondus software. Respondus Monitor requires a webcam. Lockdown and Monitor will be used for the administration of exams.
- **Calculator [Required]:** Scientific calculator capable of performing calculations with scientific notation and logarithms. *Bring your calculator to class and to lab every day. Only non-programmable calculators may be used on the exams.*

Course Description

CHEM 1311 General Chemistry I (3-0). An introduction to the fundamental laws and theories of chemistry, chemical nomenclature, stoichiometry, atomic structure, chemical bonding, periodic table, chemical equations and reactions, and the properties of heat flow and gases. **Prerequisites:** Students must have received: a score of 580 or above on the mathematics portion of the SAT if taken before March 2016, a score of 600 or above on the mathematics portion of the SAT if taken in March 2016 or after, a score of 26 or above on the mathematics section of the ACT, completed college algebra with a grade of “C” or better, or completed Chemistry 1305 with a grade of “C” or better in order to enroll in Chemistry 1311/1111. **Corequisite:** Chemistry 1111.

Technology Requirements

This course has an online component. Students must have internet access to attend lectures, do homework and work on labs (if applicable). Students are required to have access to:

- A computer with internet access and a webcam.
- Access to **ALEKS**.
- Access to **LearnSmart Labs** for the laboratory course.
- **Respondus LockDown Browser** installed for exams.
- Access to **Slack**. Join our Slack workspace using this link: https://join.slack.com/t/asu-genchem-w2021/shared_invite/zt-kbaxewur-In0xP25bhxN304io79A_sQ. Slack is an easy way to get in touch with me or other students to discuss homework and form study groups.

Grading

Evaluation and Grades

Course grades will be determined as indicated in the table below.

Assessment	Total Points
Exams (3×100 pts)	300 pts
Final Exam	150 pts
ALEKS Worksheets in Class	250 pts
ALEKS Homework	100 pts
Laboratory	200 pts
Total	1000 pts

Students who are taking both CHEM 1111 and CHEM 1311 for the first time who wish to drop either course **must** drop both courses, because dropping either course would result in the co-requisite requirement no longer being met.

Overall grades in CHEM 1311/1111 will be determined as follows:

- If **BOTH** CHEM 1311 and CHEM 1111 are completed, the letter graded will be based on a total of 1000 points.
- For students who begin and complete **ONLY** CHEM 1311, a percentage will be calculated using only lecture assessments (first four items listed above with 800 points possible) and the letter grade will be assigned based on that percentage.
- For students who begin and complete **ONLY** CHEM 1111, the percentage will be calculated using only lab assessments and that percentage will be used to assign a letter grade.”

Course Delivery

This course is delivered entirely online. We will be using a “flipped” classroom model, where students will watch lecture videos and doing homework outside of class time while during class time we will be completing worksheets together.

How Does It Work?

Lecture videos will be posted to Blackboard and homework will be completed through ALEKS. During our assigned class time, we will all me in a Collaborate session in Blackboard and work through problems on daily ALEKS worksheets.

Attendance

You are expected to virtually attend all class meetings in Collaborate. Activities such as worksheets cannot be made up. You will not be automatically dropped if you stop attending class. This is a very condensed class, and missing even one session can dramatically impact your ability to succeed.

Grading System

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale will be used for this course:

A = 900-1000 points (90-100%)

B = 800-899 points (80-89.9%)

C = 700-799 points (70-79.9%)

D = 600-699 points (60-69.9%)

F = 0-599 points (<60%)

Exams

The exams will be given remotely during regular class times on the dates listed below. We will meet that day for a little less than an hour before we start the 2 hour exam.

Exam	Date	Room	Time
Exam 1	Thursday, January 7	virtual	~11 am
Exam 2	Wednesday, January 13	virtual	~11 am
Exam 3	Wednesday, January 20	virtual	~11 am

Most of the exams will be over material covered since the last exam. However, the course builds on material delivered earlier so the concepts, calculations and techniques from earlier exams may be required. **Only non-programmable calculators may be used on the exams (i.e., no graphic calculators are allowed).**

Make up exams will be at the discretion of your individual faculty. Usually, allowances will only be made in the case of an excused university absence. Communication with your instructor is critical.

Final Exam

The Final Exam will be a comprehensive multiple-choice standardized exam published by the American Chemical Society (ACS). Study guides for the ACS exam (“General Chemistry - Official Study Guide”) are available for sale in the lab stockroom and from the [ACS web page](#).¹ The schedule for the 1311 final exams is shown below. The complete final exam schedule is also available on the [ASU web page](#).²

Sec	Days	Time	Instructor	Final Exam Date	Time
DM1	MTWRF	10:00 am - 12:50 pm	Dr. Smith	Friday, Jan. 22	10 am – 12 pm

Blackboard

Grades will be posted on [Blackboard](#).³ Information, handouts, homework assignments, and other course documents will either be posted on your instructor’s faculty web page, or on Blackboard.

Last Day to Drop

The last day to drop the course with a grade of “W” is **Friday, January 15, 2021**.

LECTURE SCHEDULE — Winter, 2021

Day of Jan	Lecture
4	Chapter 1: Essential Ideas and Chapter 2: Atoms, Molecules, and Ions
5	Chapter 2 cont. and Chapter 3: Composition of Substances and Solutions
6	Chapter 3, cont.
7	Chapter 4: Stoichiometry of Chemical Reactions Exam 1 (Ch. 1, 2,3)
8	Chapter 4, cont.
11	Chapter 5: Thermochemistry
12	Chapter 5, cont.
13	Chapter 6: Electronic Structure and Periodic Properties of Elements Exam 2 (Ch. 4, 5)
14	Chapter 6, cont.
15	Chapter 7: Chemical Bonding and Molecular Geometry
18	Holiday: Martin Luther King, Jr. Day
19	Chapter 8: Advanced Theories of Covalent Bonding
20	Chapter 8, cont. Exam 3 (Ch. 6, 7, 8)
21	Chapter 9: Gases
22	Final Exam

General Policies Related to This Course

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)⁴
- [Angelo State University Catalog](#)⁵

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's [Statement of Academic Integrity](#).⁶

Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the [Student Disability Services website](#).⁷ The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Houston Harte University Center, Room 112

Virtual communication

Office hours and/or advising may be done with the assistance of the telephone, Collaborate, Skype, etc.

Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 [Grading Procedures](#)⁸ for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)⁹ in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize

or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).¹⁰

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for [Observance of Religious Holy Day](#)¹¹ for more information.

Title IX Statement

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Boone, J.D. You may submit reports in the following manner:

Online: www.angelo.edu/incident-form

Face to Face: Mayer Administration Building, Room 210

Phone: 325-942-2022

Email: michelle.boone@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State's policy please visit: www.angelo.edu/title-ix.

Required Use of Masks/Facial Coverings

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory [Facial Covering Policy](#) to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance

with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

Student Learning Outcomes

- **Learning Goal 1:** Students will be able to analyze complex chemical problems and draw logical conclusions.
 - Students will be able to use an understanding of atomic structure at the basic and atomic levels to analyze the structure and reactivity of substances and chemical species.
 - Students will be able to use an understanding of how energy interacts with matter to predict stable chemical species, and perform thermodynamic calculations describing chemical reactions.
- **Learning Goal 2a:** Students will be able to understand and apply scientific reasoning in the chemical sciences.
 - Students will be able to use an understanding of ions and molecules at the atomic level to predict the behavior of reactions in aqueous solutions.
 - Students will be able to use the basic ideas of quantum mechanics to describe how molecular bonds form and to predict molecular shape and polarity. Molecular structure and polarity will be used to predict the forces between molecules and relate those forces to the states of matter and phase changes.
- **Learning Goal 2b:** Students will be able to employ mathematics in the analysis of chemical problems.
 - The mole concept, chemical formulas and balanced chemical equations will be used to do chemical calculations that relate macroscopic measurements to numbers of atoms, ions or molecules.

- Students will be able to do calculations involving solution concentration and know how to prepare solutions of given concentrations.
- Students will be able to quantitatively predict gas properties using gas law calculations.
- **Learning Goal 3:** Students will be able to demonstrate technical and analytical skills in chemistry.
 - Students will be able to use the periodic table to determine basic atomic information and to predict trends in atomic properties.
 - Students will be able to interconvert between chemical names and formulas to the extent that they can work problems given only one of those pieces of information.
 - Students will be able to classify common types of chemical reactions and predict the outcomes of reactions.

Evaluation of Student Learning Outcomes

Student learning outcomes will be evaluated by test questions or by the grading of in-classroom activities, as described by your instructor.

Texas Higher Education Coordinating Board Natural Sciences Objectives

The objective of the study of a natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the basis for building and testing theories.

Exemplary Educational Objectives

1. To understand and apply method and appropriate technology to the study of natural sciences.
2. To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
3. To identify and recognize the differences among competing scientific theories.
4. To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
5. To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

¹ <http://uwm.edu/acs-exams/students/student-study-materials/>

² http://www.angelo.edu/services/registrars_office/final.html

³ <http://blackboard.angelo.edu> (or access Blackboard from RamPort)

⁴ <https://www.angelo.edu/student-handbook/>

⁵ <https://www.angelo.edu/catalogs/>

⁶ <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

⁷ <https://www.angelo.edu/services/disability-services/>

⁸ <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

⁹ <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

¹⁰ https://www.angelo.edu/dept/writing_center/academic_honesty.php

¹¹ <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>