

# CHEM 1311/1111

## General Chemistry

Winter, 2022



### Instructor:

**Dr. Gregory Smith**

Email: [Gregory.Smith@angelo.edu](mailto:Gregory.Smith@angelo.edu)

Phone: 486-6628

Office: CAV 207A

Office Hours: Afternoons, please message or email me.

### CHEM 1311 — GENERAL CHEMISTRY LECTURE CLASS

#### Lecture Class Meeting Times

Days	Time	Instructor	Location
MTWRF	10:00 am-11:50 pm* *Attendance is not required, the video will be posted shortly after.	Dr. Smith	Online

#### Required Texts and Materials

- **Textbook and ALEKS online homework:**

Paul Flowers, Klaus Theopold, Richard Langley, and William R. Robinson,

*Chemistry 2e* (2<sup>nd</sup> edition). <https://openstax.org/details/books/chemistry-2e>

Purchasing Options:

1. Textbook – FREE!
  2. ALEKS – McGraw-Hill; <https://www.aleks.com>
- **Calculator [Required]:** Scientific calculator capable of performing calculations with scientific notation and logarithms. **Only non-programmable calculators may be used on the exams.**
  - Access to **Slack**. Along with email, we will be using Slack to communicate.

## Course Description

**1311/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.

**1111/CHEM 1111 General Chemistry I Laboratory (0-3).** Laboratory experiments that focus on laboratory technique, data collection, and analysis. The experiments will expand upon the concepts and topics presented in Chemistry 1311.

**Corequisite:** Chemistry 1311.

## Technology Requirements

We will utilize some online systems in the course. Students are required to have access to:

- A computer with internet access to connect to **Blackboard**.
- Access to **ALEKS**.
- **Respondus LockDown Browser and Monitor** installed for exams.
- Access to **Slack**. Join our Slack workspace using the link in Blackboard. 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 (3x125 pts)	375 pts
Final Exam	225 pts
ALEKS Homework	200 pts
Laboratory Points	200 pts
<b>Total</b>	<b>1000 pts</b>

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.”

## 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 during regular class time on the dates listed below:

Exam	Date	Room	Time
Exam 1	Monday, December 20	Online	2 hours
Exam 2	Monday, Jan 3	Online	2 hours
Exam 3	Monday, Jan 10	Online	2 hours

These exams will be taken using a device such as a laptop or tablet with a webcam and the **Respondus LockDown Browser and Monitor**.

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 from the [ACS web page](#).<sup>1</sup> The schedule for the 1311 final exam is shown below. The complete final exam schedule is also available on the [ASU web page](#).<sup>2</sup>

Sec	Days	Lecture Time	Instructor	Final Exam Date	Time
010	MRWRF	-	Dr. Smith	Friday, January 14	

## Blackboard

Grades will be posted on [Blackboard](#) as well as information, handouts, homework assignments, and other course documents.

## Attendance

You are not required to attend the lectures, but are encouraged to do so. Please watch the videos and keep current with the homework.

## Last Day to Drop

The last day to drop the course with a grade of “W” is **January 4, 2022**.

# CHEM 1111 — GENERAL CHEMISTRY LABORATORY

## Laboratory

The lab class that accompanies the CHEM 1311 lecture course is shown below. I will be live-streaming and recording a pre-lab lecture around noon for the first few days of each week for the labs.

Day	Time	Instructor	Class Room	Lab Room
Asynch	12 pm Live-Stream Posted online after	Dr. Smith	Online	Online

The CHEM 1111 General Chemistry laboratory class accompanies this lecture class. The lab is designed to illustrate some of the principles involved in performing scientific

measurements, handling chemicals, and performing chemistry experiments. In some cases, the experiments in the lab will introduce you to concepts before you cover them in the lecture course, and in some cases, the experiments will reinforce concepts already covered in the lecture course.

## Required Materials

- **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.*
- Access to **Slack**. Join our Slack workspace using the link in Blackboard. Slack is an easy way to get in touch with me or other students to discuss homework and form study groups.
- Access to **Labflow**. Labflow is the online lab system we will be using in this course. You will have to purchase access to it. Instructions are posted on BlackBoard.

## Lab Procedures and Lab Reports

We will be using Labflow, an online lab system, for CHEM 1111. I will post access information on Blackboard. I will be live-streaming and recording short lab lectures for each lab at the beginning of each week. Each lab will be worth 100 points, and the point average in Lab will be scaled to 200 points and then incorporated into your overall CHEM 1311/1111 grade if applicable.

## Lab Exams

There will be a 100-point lab final.

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**This syllabus is subject to change.**

## LECTURE AND LAB SCHEDULE — Summer II, 2020

Day	Date	Lecture	Lab
1	Dec. 13	Chapter 1 <i>Essential Ideas</i>	Lab Safety Conversion Factors and Problem Solving
2	Dec. 14	Chapter 2 <i>Atoms, Ions, and Molecules</i>	Basic Laboratory Techniques
3	Dec. 15	Chapter 2 <i>continued</i>	Determination of Density
4	Dec. 16	Chapter 3 <i>Composition of Substances and Solutions</i>	-
5	Dec. 17	Chapter 3 <i>continued</i>	-
6	Dec. 20	Chapter 4 <i>Stoichiometry</i> Exam 1	Empirical Formulas Chemistry of Copper and Percent Recovery
7	Dec. 21	Chapter 4 <i>continued</i>	Solutions, Electrolytes, and Concentrations Titration: Determining the Concentration of an Acid
8	Dec. 22	Chapter 4 <i>continued</i> Chapter 5 <i>Thermochemistry</i>	-
9	Dec. 23	Chapter 5 <i>continued</i>	-
11	Dec. 24 – Dec. 31	Holiday Break	-
12	Jan. 3	Chapter 6 <i>Electronic Structure and Periodic Properties</i> Exam 2	Constant Pressure Calorimetry
13	Jan. 4	Chapter 6 <i>continued</i>	Atomic Spectra
14	Jan. 5	Chapter 7 <i>Bonding and Molecular Geometry</i>	-
15	Jan. 6	Chapter 7 <i>continued</i>	-
16	Jan. 7	Chapter 8 <i>Advanced Bonding Theories</i>	-
17	Jan. 10	Chapter 9 <i>Gases</i> Exam 3	Analysis of KCl/KClO <sub>3</sub> Using the Ideal Gas Law
18	Jan. 11	Chapter 9 <i>continued</i>	
19	Jan. 12	Chapter 10 <i>Intermolecular Forces</i>	
20	Jan. 13	Chapter 10 <i>continued</i>	Lab Final
21	Jan. 14	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](#)<sup>3</sup>
- [Angelo State University Catalog](#)<sup>4</sup>

## **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](#).<sup>5</sup>

## **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](mailto:ADA@angelo.edu). For more information about the application process and requirements, visit the [Student Disability Services website](#).<sup>6</sup> 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](mailto:dallas.swafford@angelo.edu)  
Houston Harte University Center, Room 112

## **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](#)<sup>7</sup> for more information.

## **Plagiarism**

Plagiarism is a serious topic covered in ASU's Academic Integrity policy<sup>8</sup> 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.<sup>9</sup>

## **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<sup>10</sup> for more information.

## **Title IX at Angelo State University**

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.  
Director of Title IX Compliance/Title IX Coordinator  
Mayer Administration Building, Room 210  
325-942-2022  
[michelle.boone@angelo.edu](mailto:michelle.boone@angelo.edu)

**You may also file a report online 24/7 at [www.angelo.edu/incident-form](http://www.angelo.edu/incident-form).**



If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit [www.angelo.edu/title-ix](http://www.angelo.edu/title-ix).

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## 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.

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

<sup>2</sup> [http://www.angelo.edu/services/registrar\\_office/final.html](http://www.angelo.edu/services/registrar_office/final.html)

<sup>3</sup> <https://www.angelo.edu/student-handbook/>

<sup>4</sup> <https://www.angelo.edu/catalogs/>

<sup>5</sup> <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

<sup>6</sup> <https://www.angelo.edu/services/disability-services/>

<sup>7</sup> <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

<sup>8</sup> <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

<sup>9</sup> [https://www.angelo.edu/dept/writing\\_center/academic\\_honesty.php](https://www.angelo.edu/dept/writing_center/academic_honesty.php)

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<sup>10</sup> <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>