NOTE:
All upcoming classes AND laboratory experiments are virtual and DO NOT require any student to be on ASU campus for the remaining of the semester. Per ASU administration all students are highly encouraged to stay home.

Instructors:
Dr. Ralph Zehnder
Email: Ralph.Zehnder@angelo.edu
Cell Phone: 318-538-8585
Office: CAV 204B
Office Hours: Virtual office hours by requested appointment using BB collaborate, Facetime, or Skype.
Face to face meetings in my office by requested appointment in advance, AND if approved by ASU administration.

Mr. Kevin Boudreaux
Email: Kevin.Boudreaux@angelo.edu
Phone: 486-6623
Office: CAV 207B
Office Hours: M-F 9:30-11, or by appointment; Review sessions M 5 pm

Mr. Rigel Rilling
Email: Rigel.Rilling@angelo.edu
Phone: 486-6654
Office: CAV 201B
Office Hours: W 2:00-5:00 pm, F 11:00 am-2:00 pm, or by appointment
CHEM 1311 — GENERAL CHEMISTRY LECTURE CLASS

VIRTUAL Class Meeting Times

<table>
<thead>
<tr>
<th>Sec</th>
<th>Days</th>
<th>Time</th>
<th>Instructor</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>010</td>
<td>MWF</td>
<td>10:00 am-10:50 am</td>
<td>Dr. Zehnder</td>
<td>BB Collaborate</td>
</tr>
<tr>
<td>030</td>
<td>TR</td>
<td>11:00 am-12:15 pm</td>
<td>Dr. Zehnder</td>
<td>BB Collaborate</td>
</tr>
</tbody>
</table>

Required Texts and Materials

- **Textbook and SmartWork online homework [Both Required]:**

  **Purchasing Options:**
  1. Textbook (printed) + eBook + SmartWork
  2. eBook + SmartWork
  3. SmartWork only (only if you get a textbook from another source that does not include SmartWork.)

  Options 1 and 2 are available at the ASU Bookstore.
  Option 3 is only available from the publisher at the Norton website.¹

- **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

**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.

**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**

You must have access to a computer with a webcam and to the Internet in order to complete this course as it continues online from March 23rd.

To successfully complete this course, students need to obtain access to **SmartWork**, an online homework program which accompanies the Gilbert textbook.² These assignments will be averaged to give a 200-point grade. To register with SmartWork from within Blackboard, follow the instructions at the end of this syllabus.

**TopHat student and classroom engagement platform [Required]**

We will be using TopHat, which is an interactive system that will allow students to use their cell-phones, and/or tablets, and/or laptops to answer questions/quizzes instantly in class and at home. To get started and for more information please go to this link and create an account unless you have already a TopHat Account at ASU: [https://tophat.com](https://tophat.com)

Please see the information below for your individual section:

**Course Name:** CHEM 1311-010 - Spring 2020  
**Direct URL:** [https://app.tophat.com/e/841777](https://app.tophat.com/e/841777)  
6-digit join code: **841777**

**Course Name:** CHEM 1311-030 - Spring 2020  
**Direct URL:** [https://app.tophat.com/e/113023](https://app.tophat.com/e/113023)  
6-digit join code: **113023**

**Purchasing Options:** [https://tophat.com/pricing/](https://tophat.com/pricing/)

1. Create account for 1 semester (4 months): $30  
2. Create account for 2 terms (12 months): $48  
3. Create account for 4 years access: $96

You only need to create **ONE** account that you will be able to use for all classes at ASU that utilize TopHat.


### Grading

#### Evaluation and Grades
Course grades will be determined as indicated in the table below.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (3×100 pts)</td>
<td>300 pts</td>
</tr>
<tr>
<td>Final Exam</td>
<td>150 pts</td>
</tr>
<tr>
<td>Quizzes, classroom participation</td>
<td>150 pts</td>
</tr>
<tr>
<td>SmartWork Homework, BB quizzes</td>
<td>200 pts</td>
</tr>
<tr>
<td>Laboratory</td>
<td>200 pts</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000 pts</strong></td>
</tr>
</tbody>
</table>

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 grade 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 in TopHat AND/OR BlackBoard:
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 exam. The schedule for the 1311 final exams is shown below. The complete final exam schedule is also available on the ASU web page.³

<table>
<thead>
<tr>
<th>Sec</th>
<th>Instructor</th>
<th>Final Exam Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>010</td>
<td>Dr. Zehnder</td>
<td>Mon., May 4</td>
<td>10:30 am-12:30 pm, BlackBoard, or TopHat</td>
</tr>
<tr>
<td>030</td>
<td>Dr. Zehnder</td>
<td>Tues., May 5</td>
<td>10:30 am-12:30 pm, BlackBoard, or TopHat</td>
</tr>
</tbody>
</table>

**Coursework**
You are expected to watch the videos I posted on YouTube for the individual upcoming chapters (linked from within the individual lessen segments in BlackBoard), work through the PowerPoint slides, and the material in the book. This you will do on your own pace as long as you complete the assignments in BlackBoard, TopHat, and SmartWork on time. Watch carefully for the deadlines of these mandatory assignments. During the official class times (MWF 10:00 am for section 010, TR 11:00 am for section 030) I will facilitate a virtual classroom. During these times I will open some of the TopHat questions and you will work through these assignments while I will be present to assist if you have questions or need help. You are expected to be present in the virtual classroom at these times. If you miss to solve the TopHat assignments at that time you will not be given the opportunity to make them up at a later time. The virtual classroom can be entered through BlackBoard Collaborate ultra:

https://blackboard.angelo.edu/webapps/collab-ultra/tool/collabultra?course_id=63584_1
It is your responsibility to be in the virtual class as I will disburse important information regarding exams, TopHat, BB quizzes, etc. during the virtual meetings that you may not be able to find elsewhere. I am intending to leave the virtual classroom unlocked. This means you can meet your classmates there at any time to study together. During class times when you solve TopHat questions you are encouraged to work in small teams in the virtual classroom.

SmartWork assignments, BlackBoard quizzes and exams must be worked individually, **NO TEAMWORK** allowed there.

**Blackboard**
Grades will be posted on [Blackboard](https://blackboard). For the remainder of the semester BlackBoard will be the core platform for you to find the central resources for your coursework.

**Last Day to Drop**
The last day to drop the course with a grade of “W” is **Thursday, March 26, 2020**.
**This drop date is likely to change for a date later in the semester.**

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**CHEM 1111 — GENERAL CHEMISTRY LABORATORY**

**Virtual Laboratory**
All remaining laboratories will be virtual and do not require your presence on campus.

The lab classes that accompany the CHEM 1311 lecture course are shown in the table below. The virtual labs will have a pre-lab video component recorded by Dr. Maxwell. The actual laboratory will be performed by Dr. Zehnder and Mr. Rilling and provided as a recorded video. In the video you will be able to take readings of measurements/data, which you will use for your laboratory reports. If the video quality doesn't allow for you to read the correct values, we will read them for you and provide them within the video.
<table>
<thead>
<tr>
<th>Section</th>
<th>Meeting Time</th>
<th>Instructor</th>
<th>Class Room</th>
<th>Lab Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>03Z</td>
<td>Self paced</td>
<td>Posted pre-lab videos an lab videos</td>
<td>BB collaborate</td>
<td>BB collaborate</td>
</tr>
<tr>
<td>04Z</td>
<td>Self paced</td>
<td>Posted pre-lab videos an lab videos</td>
<td>BB collaborate</td>
<td>BB collaborate</td>
</tr>
<tr>
<td>05Z</td>
<td>Self paced</td>
<td>Posted pre-lab videos an lab videos</td>
<td>BB collaborate</td>
<td>BB collaborate</td>
</tr>
<tr>
<td>06Z</td>
<td>Self paced</td>
<td>Posted pre-lab videos an lab videos</td>
<td>BB collaborate</td>
<td>BB collaborate</td>
</tr>
<tr>
<td>07Z</td>
<td>Self paced</td>
<td>Posted pre-lab videos an lab videos</td>
<td>BB collaborate</td>
<td>BB collaborate</td>
</tr>
<tr>
<td>08Z</td>
<td>Self paced</td>
<td>Posted pre-lab videos an lab videos</td>
<td>BB collaborate</td>
<td>BB collaborate</td>
</tr>
<tr>
<td>09Z</td>
<td>Self paced</td>
<td>Posted pre-lab videos an lab videos</td>
<td>BB collaborate</td>
<td>BB collaborate</td>
</tr>
</tbody>
</table>

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.

All remaining laboratories will be virtual and do not require your presence on campus.

**Laboratory Attire**
You are welcome but NOT obligated to wear safety goggles when watching the videos.

**Lab Procedures and Lab Reports**
The procedures for these labs will be posted on Blackboard in the section labeled “Lab Resources.” The procedures will provide a description of the background for each experiment, pre-laboratory questions that will be turned in at the beginning of the lab period, a procedure for the experiment, and a lab report form which must be handed in when the lab is completed. It is essential that you read the materials posted in Blackboard for that week’s lab before watching the prelab video. You must watch the lab video in order to obtain the data needed to complete your lab report. Each lab will be worth 100 points. The point average in Lab will be scaled to 200 points and then incorporated into your overall CHEM 1311/1111 grade.
Lab Midterm and Lab Final
There will be a 100-point lab midterm and a 100-point lab final given during the week of 3/30/20 and the last week of classes respectively. These grades will not be dropped from the lab total. Both tests will be taken in BlackBoard.

<table>
<thead>
<tr>
<th>Date</th>
<th>Week Of</th>
<th>Lecture</th>
<th>Lab</th>
</tr>
</thead>
</table>
| 1    | 1/13    | **Chapter 1: Matter and Energy** — Composition of Matter, States of Matter, Measurements, SI Units, Significant Figures, Unit Conversions | Lab Safety Lecture  
Significant figure lecture and worksheet  
Mandatory Lab Safety Training and Quiz — instructions given in Lab Safety Training section (must be completed by Jan. 26) |
| 2    | 1/20    | **Monday, Jan. 20 MLK-day**  
**Chapter 2: Atoms, Ions, and Molecules** — Nuclear Model, Atomic Mass, Periodic Table, Molecular and Ionic Compounds, Naming Compounds and Writing Formulas | Labs Do Not Meet  
Take Home Assignment: "Scientific Measurement and Presentation of Data" must be completed before start of lab next week |
| 3    | 1/27    | **Chapter 2, cont.** | Measuring Mass and Volume |
| 4    | 2/3     | **Chapter 3: Stoichiometry** — The Mole Concept, Balancing Equations, Stoichiometry, Percent Composition, Limiting Reactants | Measuring Density |
| 5    | 2/10    | **Chapter 3, cont.**  
Exam 1 — Wed., Febr. 12 (Ch. 1, 2, 3) | The Use of Volumetric Glassware |
<p>| 6    | 2/17    | <strong>Chapter 4: Solution Chemistry</strong> — Concentration, Electrolytes, Acid-Base Reactions, Precipitation Reactions, Redox Reactions | Percentage Water in a Hydrate |
| 7    | 2/24    | <strong>Chapter 4, cont.</strong> | Percentage of Potassium Chlorate in a Mixture |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Lecture</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>3/9</td>
<td>Spring Break</td>
<td>No classes or labs</td>
</tr>
<tr>
<td>10</td>
<td>3/16</td>
<td>EXTENDED Spring Break</td>
<td>No classes or labs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exam 2 – Wend., March 25 (Ch. 4, 5) Thurs., March 26 Last Day to Drop (likely to be extended)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4/6</td>
<td>Chapter 8: Chemical Bonds — Lewis Structures, Covalent Bond, Polar Bonds, Resonance, Exceptions to the Octet Rule</td>
<td>Gas Law Labs Lab Midterm Exam</td>
</tr>
<tr>
<td>14</td>
<td>4/13</td>
<td>Chapter 9: Molecular Geometry — VSEPR, Valence Bond Theory, MO Theory</td>
<td>The Emission Spectra of Atoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exam 3 – Wed., April 15 (Ch. 6, 7, 8)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>4/20</td>
<td>Chapter 9, cont.</td>
<td>Molecular Structures and Shapes</td>
</tr>
<tr>
<td>16</td>
<td>4/27</td>
<td>Chapter 10: Intermolecular Forces — Intermolecular Forces, Vapor Pressure, Phase Diagrams, Water</td>
<td>Lab Final Exam</td>
</tr>
<tr>
<td>17</td>
<td>5/4</td>
<td>Final Exams</td>
<td></td>
</tr>
</tbody>
</table>
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
- Angelo State University Catalog

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 to disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's Statement of Academic Integrity.

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.

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
E-mails
For conducting official ASU business please use your official ASU e-mail account. Please make sure that you check your ASU.EDU account on a regular basis. The instructor may send important announcements regarding this course, homework, and/or exams to your ASU e-mail account. You will not be able to use the excuse of not checking your e-mail with regard to assignments, tasks, or exams you missed. Any submitted e-mails are expected to be written in a professional format and impeccable English. For more information how to communicate by e-mail please see: https://www.wikihow.com/Email-a-Professor
The instructor will refuse to read and/or respond to any messages that do not comply with such requirements. The instructor will respond to legitimate e-mails within 24 - 48 hours during the week and may not respond until after weekends or holidays if messages are received on any of such days.

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 for more information.

Plagiarism
Plagiarism is a serious topic covered in ASU’s Academic Integrity policy 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.11

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 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

You may also file a report online 24/7 at 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.
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://books.wwnorton.com/books/index.aspx
2 www.wwnorton.com/smartwork
3 http://www.angelo.edu/services/registrarsoffice/final.html
4 http://blackboard.angelo.edu (or access Blackboard from RamPort)
5 https://www.angelo.edu/student-handbook/
6 https://www.angelo.edu/catalogs/
7 https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
8 https://www.angelo.edu/services/disability-services/
9 https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
10 https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
11 https://www.angelo.edu/dept/writing_center/academic_honesty.php
12 https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
To enroll in the SmartWork online homework please go to “content” in BlackBoard and click on the link SmartWork5, which looks like the one shown in the picture below.

Then follow the guidelines given by Norton.