

# General Chemistry I -- CHEM 10113-010

Fall, 2019

Class Website: <http://personal.tcu.edu/rneilson/Chem10113/10113.htm>

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## Instructor

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### Dr. Robert H. Neilson (aka "Dr. Bob")

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### Office Hours

Monday ..... 11:30-1:30 and 2:00-3:00

Tuesday ..... 12:00-2:00 and 3:00-5:00

(other times by appointment and/or as announced in class)

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## Course Policies

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1. **MAKE-UP EXAMS** (*hour exams only -- not short quizzes*) will be given only in cases of *absences* due to one of the following reasons. **All make-up exams will be given at the end of the semester on a date to be announced.** At the discretion of the instructor, the same make-up exam may be used regardless of which hour exam was missed.
  - (a) student's name on the **List of Official University Absences**,
  - (b) a **written medical excuse** that includes the doctor's name, phone number, and a **clear statement that the illness requires absence from class**,
  - (c) a **written notice** from the Dean of Campus Life indicating that a student is dealing with a major personal and/or family problem.

*Short quizzes which are missed for one of the above reasons will not be counted toward the student's quiz average, otherwise a zero will be recorded.*

2. **CALCULATORS** - You will need a *simple, scientific calculator* capable of doing scientific notation and logarithms for the exams. **Sharing of calculators during exams is not permitted.** ALL PROGRAMMABLE OR GRAPHING CALCULATORS, LAPTOPS, TABLETS, CELL PHONES, SMART WATCHES, OR SIMILAR DEVICES ARE NOT PERMITTED DURING EXAMS AND QUIZZES.
3. On the quizzes and exams, "**SHOW ALL WORK**" means show a clear logical method for solving the problem. In such cases, **the right answer is worth nothing unless your work is properly shown, including units for all quantities.**
4. **DON'T FALL BEHIND !!!** More than any other course, chemistry requires disciplined study habits which means keeping up with the material on a **day-by-day basis: a minimum of 15 hours of concentrated, quality study time per week is probably about average.** Do **ALL** of the assigned homework problems with the objective of **understanding the concept**, not just getting the right answer.
5. **Most importantly, please** take advantage of the office hours and **ASK FOR HELP !**

## Lecture, Exam, and Grading Information

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### *Textbook, Lectures, and "Homework"*

***Chemistry: A Molecular Approach, 4th Ed, by N. J. Tro***  
(ISBN: 9780134112831)

**This semester will cover chapters 1 - 12 in the following sequence.**

- Measurement and Introductory Topics: Chapters 1-3
- Stoichiometry and Chemical Reactions: Chapters 4-6
- Chemical Bonding and Structure: Chapters 7-10
- States and Properties of Matter: Chapters 11-12

***Without question, the best way to study for this course is to WORK PROBLEMS !***  
***At the very least, do the "blue-numbered" problems at the end of each chapter, with emphasis on those that illustrate topics covered in class.*** The "cumulative" and "challenge" problems are especially good for testing your true ***understanding*** of the important concepts. ***Check the class web site for a specific list of assigned problems in each chapter.*** These "homework" problems are for your own study benefit. They will not be collected or graded.

***Each of the three hour exams will typically cover about 3-4 chapters. The short quizzes will cover new material since the last quiz or exam. The final exam is comprehensive over the entire semester.***

### *Exam and Quiz Schedule*

<b>Exam 1</b>	<b>Wednesday, September 25</b>
<b>Exam 2</b>	<b>Wednesday, October 30</b>
<b>Exam 3</b>	<b>Wednesday, December 4</b>
<b>Quiz Dates</b> (all on Wed)	<b>Sept 11    Sept 18    Oct 9    Oct 23</b> <b>Nov 13    Nov 20    Dec 11</b>
<b>Final Exam</b>	<b>Wednesday, December 18, <u>8:00-10:30</u></b>

### *Other Important Dates*

Monday, Sept 2.....Labor Day -- no class  
Mon-Tues, Oct 14-15 .....Fall break -- no class  
Monday, Nov 11 .....***Last day to drop a course!***  
Tuesday, Nov 12.....***Last day to select P/NC grading!***  
Wed-Fri, Nov 27-29 .....Thanksgiving break -- no class  
Thurs-Fri, Dec 12-13 .....Study Days -- no class

## **Grading Scheme**

3 Hour Exams:	54 % (18 % each)
Quiz Average:	18 % (lowest quiz dropped)
Final exam:	28 %

Approximate grading scale: A (88-100), B (76-87), C (64-75), D (52-63), F (0-51)

***Plus-Minus letter grades are used in borderline cases***, i.e., within 1-2 points of letter grade cut lines (e.g., the highest B's may be B+ and the lowest B's may be B-). An approximate grade distribution for the class will be presented after each major exam. ***A final grade of C- or higher is required for continuation to CHEM 10123.***

## **Learning Objectives**

Upon successful completion of this course, students will be able to:

1. Use dimensional analysis with proper attention to units and significant figures.
2. Name and classify ionic and molecular compounds.
3. Determine empirical and molecular formulas from empirical data.
4. Balance chemical equations and use stoichiometric relationships and the mole concept to calculate product and reactant amounts.
5. Identify different types of reactions (precipitation, neutralization, gas-formation, oxidation-reduction, etc.) and predict the outcome of these reactions.
6. Apply gas laws and kinetic molecular theory to processes involving gases.
7. Understand the role of energy and enthalpy in chemical reactions and perform thermochemical and calorimetric calculations.
8. Understand the basic concepts of quantum theory, determine the electron configurations of atoms, and use periodic trends to make predictions about atomic properties.
9. Write proper Lewis electron dot formulas and determine the molecular geometry of molecules using VSEPR theory.
10. Understand theories of covalent bonding including Valence Bond Theory and simple Molecular Orbital Theory.
11. Explain the intermolecular attractive forces that determine the properties of the condensed states of matter and phase behavior.
12. Understand the types and lattice structures of crystalline solids.

## *Additional Information*

### **Statement of Disability Services at TCU**

Texas Christian University complies with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973 regarding students with disabilities. Eligible students seeking accommodations should contact the [Coordinator of Student Disabilities Services in the Center for Academic Services](http://www.acs.tcu.edu/disability_services.asp) located in Sadler Hall, room 1010 or [http://www.acs.tcu.edu/disability\\_services.asp](http://www.acs.tcu.edu/disability_services.asp). Accommodations are not retroactive, therefore, students should contact the Coordinator as soon as possible in the term for which they are seeking accommodations. Further information can be obtained from the Center for Academic Services, TCU Box 297710, Fort Worth, TX 76129, or at (817) 257-6567.

Adequate time must be allowed to arrange accommodations and accommodations are not retroactive; therefore, students should contact the Coordinator as soon as possible in the academic term for which they are seeking accommodations. Each eligible student is responsible for presenting relevant, verifiable, professional documentation and/or assessment reports to the Coordinator. Guidelines for documentation may be found at [http://www.acs.tcu.edu/disability\\_documentation.asp](http://www.acs.tcu.edu/disability_documentation.asp).

Students with emergency medical information or needing special arrangements in case a building must be evacuated should discuss this information with their instructor/professor as soon as possible.

### **Statement on TCU's Discrimination Policy**

TCU prohibits discrimination and harassment based on age, race, color, religion, sex, sexual orientation, gender, gender identity, gender expression, national origin, ethnic origin, disability, predisposing genetic information, covered veteran status, and any other basis protected by law, except as permitted by law. TCU also prohibits unlawful sexual and gender-based harassment and violence, sexual assault, incest, statutory rape, sexual exploitation, intimate partner violence, bullying, stalking, and retaliation. We understand that discrimination, harassment, and sexual violence can undermine students' academic success and we encourage students who have experienced any of these issues to talk to someone about their experience, so they can get the support they need. [Review TCU's Policy on Prohibited Discrimination, Harassment and Related Conduct or to file a complaint: https://titleix.tcu.edu/title-ix/](https://titleix.tcu.edu/title-ix/).

### **Statement on Title IX at TCU**

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep any information you share private to the greatest extent possible. However, I have a mandatory reporting responsibility under TCU policy and federal law and I am required to share any information I receive regarding sexual harassment, discrimination, and related conduct with TCU's Title IX Coordinator. Students can receive confidential support and academic advocacy by contacting TCU's Confidential Advocate in the Campus Advocacy, Resources & Education office at (817) 257-5225 or the [Counseling & Mental Health Center](https://counseling.tcu.edu/) at <https://counseling.tcu.edu/> or by calling (817) 257-7863. [Alleged violations can be reported to the Title IX Office](https://titleix.tcu.edu/student-toolkit/) at <https://titleix.tcu.edu/student-toolkit/> or by calling (817) 257-8228. Should you wish to make a confidential report, the Title IX Office will seek to maintain your privacy to the greatest extent possible, but cannot guarantee confidentiality. Reports to law enforcement can be made to the Fort Worth Police Department at 911 for an emergency and (817) 335-4222 for non-emergency or TCU Police at (817) 257-7777.

### **Student Support – Campus Offices**

- Brown-Lupton Health Center (817-257-7863)
- Campus Life (817-257-7926, Sadler Hall 2006)
- Center for Academic Services (817-257-7486, Sadler Hall 1022)
- Center for Digital Expression (CDeX) (817-257-7350, Scharbauer 2003)
- Mary Coutts Burnett Library (817-257-7117)
- Office of Religious & Spiritual Life (817-257-7830, Jarvis Hall 1st floor)
- Student Development Services (817-257-7855, BLUU 2003)
- TCU Center for Writing (817-257-7221, Reed Hall 419)
- Transfer Student Center (817-257-7855, BLUU 2003)
- Veterans Services (817-257-5557, Jarvis Hall 219)