

General Chemistry II

CHEM 1312.401



UT Tyler™

THE UNIVERSITY OF TEXAS AT TYLER

Instructor Information

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Office Hours:
Monday—Thursday,
11:00am—11:45pm



Student Learning Outcomes (Core Curriculum)

- 1) Apply the scientific method to analyze items or problems found on homework, quizzes, and tests (Critical Thinking).
- 2) Manipulate and analyze data embedded in word problems found on homework, quizzes, and tests (Empirical and Quantitative Skills).
- 3) Demonstrate teamwork by researching and presenting (both orally and via PowerPoint) on a molecule (Communication and Teamwork)

Additional Learning Outcomes

- 1) predict trends in physical properties based on the strengths of intermolecular interactions
- 2) calculate rates of reactions and their dependence on concentration, time, and temperature
- 3) propose reaction mechanisms consistent with rate data
- 4) calculate equilibrium constants or equilibrium amounts of products or reactants (ICE method)
- 5) apply Le Chatelier's Principle to determine if changes to the system will impact the equilibrium amounts of reactants and products
- 6) apply equilibrium principles to aqueous and electrochemical systems
- 7) calculate and/or convert between thermodynamic quantities (e.g. entropy, free energy and equilibrium constants, electrochemical potentials)
- 8) identify the parts of an electrochemical cell and where specific processes take place
- 9) calculate cell potentials
- 10) balance nuclear chemical equations

INTRODUCTION

General Chemistry II is a continuation of General Chemistry I. The course will cover many topics first introduced in Gen Chem I in more detail (e.g. acids/ bases, redox, and solubility).

New topics will include intermolecular forces, phase changes, liquids and solutions, colligative properties, solid-state chemistry, kinetics and mechanisms, equilibrium, entropy, voltaic cells, and nuclear chemistry. The material spans Chapters 10—17 and 19—21 in the textbook).

Good study habits will be essential to your success. You will have to employ logic and critical thinking in order to solve a wide variety of problems.

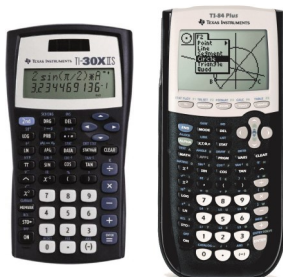
IMPORTANT DATES

- Lectures will be given face-to-face Monday-Friday from 9:00AM to 10:40AM.
- Exam Dates: July 15, July 22, July 29 and August 5 (All Wednesday)
- July 9 (Thursday)– Census Date: Deadline for all registrations, schedule changes, and section changes.
- July 29 (Wednesday) – Last day to drop or withdraw from courses
- August 7 (Friday) -- Final Exam from 9:00 am—11:00 am

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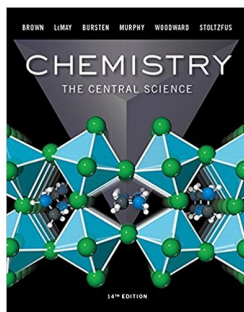
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REQUIRED MATERIALS



Scientific calculator capable of exponents and logarithms
Fancy, programmable calculators are permitted, but you must know how to use them.

RECOMMENDED MATERIALS



Chemistry: The Central Science, 14th Ed
by Brown, Lemay, and Bursten

Textbook options

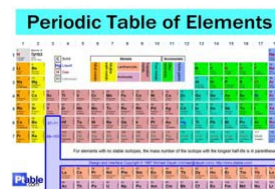
- hardcover ISBN: 9780134414232
- 3-ring binder ISBN: 9780134555638
 - e-book ISBN:



Solutions to Red Exercises
ISBN: 9780134552231



Student Guide
ISBN: 9780134554075



Some kind of periodic table,
these can be purchased or
printed off the web.

The textbook for this course is highly recommended. I will be teaching out of this textbook and recommending practice problems out of this text.

COURSE REQUIREMENTS

- Prerequisites for this course: CHEM 1311 (Gen Chem I) and CHEM 1111 (Gen Chem I Lab).
 - General Chemistry II Lab (CHEM 1112) is NOT part of this course. However, General Chemistry II Laboratory should be taken concurrently with this course. You cannot use this lecture course as part of your degree requirements without the corresponding laboratory course.
 - The deadline for all registrations, schedule changes, and section changes (the “Census Date”) is **Thursday, July 9th**. Please see the University Policies section at the end of this syllabus for more information regarding dropping class, grade replacement, etc.
- The last day to withdraw from the course is July 29th (Wednesday).** If you wish to drop the course, it is YOUR responsibility; failure to officially withdraw from the course will result in a grade of F. If you are withdrawing from this course, you are encouraged, but not required to, withdraw from the laboratory course (CHEM 1112) and vice versa. Your lab instructor is not responsible for catching you up on lecture material you missed.

ONLINE CONTENT

I will communicate with you in class and through Canvas:



- Lecture slides will be posted prior to the lecture. (You may want to print them out to use during lectures. Having these notes isn't a substitute for attending lecture.)
- All homework assignments as well as some quiz assignments will be completed and graded through Canvas.
- Exam dates and homework due dates will be listed on Canvas.
- Links to video tutorials and other helpful information

Please monitor the email account you have on Canvas for all announcements and postings.

You are automatically enrolled in all classes you are registered in. Not all instructors use Canvas, but the course will still appear on your home page.

IN-CLASS EXAMS

- The *regular exam* dates listed on page 1 are tentative (the final exam date/time is fixed).
- At least one week's notice will be given prior to the exam. Regular exams will be mostly multiple-choice with some short answer/calculation questions. They will cover material discussed in lecture AND from assigned reading in the text. *You are responsible for the assigned reading even if it has not been discussed during lecture!*
- ***One* 3½" x 5" note card, both sides is permitted (no photocopies or printed materials!). No other materials, including cell phones and smart watches, are permitted! The use of websites such as Chegg, Reddit, Course Hero, etc. is considered cheating. If exam material is found on these sites, all information will be turned over to the office of judicial affairs on campus.**
- I will do my best to return everything by the next class period. I do make mistakes from time to time. If you think that I made a grading error, please see me within one week after taking the exam. *All* scores are considered final one week after grades are posted on Canvas!

FINAL EXAM AND MAKE-UP

- The final examination will be given on (and only on) **Friday, August 7th, from 9 am – 11 am.** You are required to take the final examination in order to receive a passing grade in the course. There will be no make-up of the final exam, no exceptions!
- **The final exam will be comprehensive over general chemistry I and II. Any material covered during both semesters of general chemistry will be fair game on the final exam.**
- Missed exams will be handled according to one of the two following methods:
 - If you know that you will miss an exam due to an excused absence, then you can take the exam early. To do so you must give me at least one-week notice. **You will not be allowed to take the exam after the scheduled exam date, so, plan ahead if you know you will be absent.** For any unplanned absence, such as illness, car-trouble, funeral, etc. the final exam will replace the exam you missed. **No exams will be given after the scheduled dates.**
 - Missing a second exam will require a special meeting with me to determine the appropriate action. Such an action may include, but is not limited to withdrawing from the course.
- If you have any questions regarding these policies, please ask me.

GRADING SCALE

Grades will tentatively be assigned on a 90/80/70/60 scale, but may be adjusted based upon my evaluation of the overall class performance. Attendance, class participation, and initiative will be considered for borderline grades. Grades will be posted on Canvas* and weighted as follows:

4 midterm exams	40% (10% for each exam)
Homework	20%
Quizzes	20%
<u>Final Exam</u>	<u>20%</u>
Total	100%

*The OFFICIAL grade book is the Excel file on my computer (in the event of typos/mistakes).

EXAM GRADE REPLACEMENT

- At the end of the semester, I will **replace** your lowest exam score with your final exam score if your final exam score is higher. (If the final exam score is the lowest score, then no grade will be replaced.)
- Only one score can be replaced.
- As an example, if your exam scores are 60, 75, 80, and 85 with a 70 on the final, your final grade would be calculated based on the scores 70, 75, 80, 85 and 70 in which the first exam score of 60 was replaced with the 70.

HOMEWORK AND QUIZZES

There will be online **homework** assignments given through Canvas. These assignments will vary in length and may be composed of multiple choice, calculation, and/or free response questions. The assignments are automatically graded through Canvas however, some questions may require re-grading for spelling, sigfigs, etc. Each homework assignment allows multiple attempts. You will have 5 attempts at each homework assignment and Canvas will keep your highest score. The problems you have on the first attempt may not be the same you have on your later attempts.

Quizzes: We will have some face-to-face quizzes and some quizzes will also be given through Canvas. These assignments will sometimes require you to work the problems out by hand on a piece of paper. You can submit these by taking a picture, converting the file to PDF and uploading them within the assignment. If you do not have a scanner, there is a great app called Office Lens that you can use to convert pictures of your work to PDF files. The app is free to you as a student.

COURSE TOPICS

Gases	CHAPTER 10
Liquids and Intermolecular Forces	CHAPTER 11
Properties of Solutions	CHAPTER 13
Chemical Kinetics	CHAPTER 14
Chemical Equilibrium	CHAPTER 15
Acid-Base Equilibria	CHAPTER 16
Additional Aspects of Aqueous Equilibria	CHAPTER 17
Chemical Thermodynamics	CHAPTER 19
Electrochemistry	CHAPTER 20
Nuclear Chemistry	CHAPTER 21

DEPARTMENT CELL PHONE POLICY

Cell phones and smart watches/electronic devices must be put away during exams and quizzes. If they are observed out in a visually accessible place (i.e. between legs, on the floor, etc.), it will be assumed that they are being used to cheat and your exam will be taken, you will receive a zero score (0 points) for the exam, and you will be referred to the Office of Judicial Affairs.



STUDY TIPS

- **Study, study, study!** Chemistry requires you to **read**, **review** and **practice** (1-2 hours per hour of lecture is typical).
- **Don't "brain-dump" after an exam**, you will continue to build upon and use information throughout the semester.
- **Form study groups**, there are some smart students at UT Tyler, get to know them. Also, teaching a topic to someone else is a great way to reinforce that topic.
- **Attend class**.
- **Once you are in class, participate! (TikTok will not help you in this course!)** 🙅 🤔
- **Work practice problems I suggest from the end of the chapter**, they will be similar to, but not exactly the same, as exam questions.
- If you get behind, **do not be afraid to get help!** Take advantage of my office hours, review sessions, tutorial videos, and/or hire a tutor.

OTHER STUDENT RESOURCES

- Enrollment Services Center (One Stop Service Center) is where you add/change majors, add or drop classes or get financial aid help. (They are very busy during the first couple of weeks of the semester and around the "drop date" so please cut them some slack during those times. Faculty and staff get stressed too!)
- Student Counseling Center (www.uttyler.edu/counseling)
Dealing with stress/anxiety, improving study skills, time management, etc (all confidential)
- UT Tyler Student Health and Wellness (www.uttyler.edu/wellness)
Substance abuse, household violence, good eating habits, etc.
- The Writing Center (www.uttyler.edu/writingcenter)
Helps you learn how to write ~~gooder~~ better.
- Student Life (www.uttyler.edu/admissions/studentlife)
Clubs, Greek system, recreational sports, service opportunities, etc.

UNIVERSITY TOBACCO POLICY

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

UNIVERSITY CAMPUS CARRY POLICY

"We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>."

UNIVERSITY POLICIES

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:

<http://www.uttyler.edu/wellness/rightsresponsibilities.php>

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions that students need to be aware of. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including non-visible a disability diagnosis such as a chronic disease, learning disorder, head injury or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the Student Accessibility and Resources office and schedule an interview with an Accessibility Case Manager. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR webpage (<http://www.uttyler.edu/disabilityservices/>) or the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to saroffice@uttyler.edu.

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement:

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation:

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.