

CHE 154 General Chemistry II

Section A — MW 8:30 – 9:50 AM — Innovation & Collaboration Building 210

Instructor: Dr. Matthew Wilson

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Office Hours: Dr. Wilson will be available 1:30 – 3:00 PM Monday through Thursday, and at other times by appointment.

Course Description: A continuation of General Chemistry I. Topics include solution chemistry, kinetics, equilibrium, thermodynamics, electrochemistry, and nuclear chemistry.

Prerequisites: CHE 152 and CHE 153L (both with a grade of “C” or better), and current enrollment in or successful completion of CHE 155L (with a grade of “C” or better). Prerequisite or corequisite: MAT 170.

Learning Objectives:

- Understand how intermolecular forces affect the physical properties of substances.
- Learn how reaction kinetics relates to reaction mechanism.
- Apply the concept of thermodynamic equilibrium to chemical reactions.
- Understand the thermodynamic parameters enthalpy, entropy, and Gibbs free energy.
- Understand how electrochemistry relates to redox reactions.
- Apply nuclear chemistry to understand radioactivity.

Required Materials: *Chemistry: A Molecular Approach*, N. J. Tro, 3rd ed., the accompanying *Selected Solutions Manual*, K. T. Shaginaw and M. B. Kramer, 3rd ed., and a non-programmable scientific calculator (a phone or other electronic device may *not* be substituted for a calculator).

Recommended Material: *ACS Study Guide for General Chemistry Exam* (on reserve at the UT Library and available for purchase at <http://chemexams.chem.iastate.edu/guides/index.cfm>)

Attendance: Attendance is not mandatory, but necessary. Supplemental materials may be distributed in class, and topics may not always be covered in the text.

Communication: Class announcements, lecture notes, course documents, and grades will be posted on Blackboard (<http://ut.blackboard.com>). Students are responsible for monitoring their UT email account and the course Blackboard site.

Homework: The MasteringChemistry online homework system (<http://www.masteringchemistry.com>) will be used in conjunction with this course. Each chapter will have two associated assignments: “Tutorials” and “Graded”. The “Tutorials” assignments are a collection of tutorial problems which are not required and not graded. The “Graded” assignment problems are graded for correctness, with the opportunity to earn partial credit if multiple attempts are needed. No credit will be given for late submissions. The maximum number of course points that can be earned from homework is 100 points.

Exams: Each exam will be worth 100 course points. A missed exam will count as a zero, unless excused by your instructor. A decision to excuse an absence from an exam will only be considered if supported by written documentation. An excused in-class exam will be replaced by the average of the student's other three in-class exam grades; no make-up exams will be given. Any requests regarding the regrading of an exam must be made within one week of receiving the graded exam; your instructor reserves the right to regrade the entire exam. The final exam will be a standardized exam prepared by the American Chemical Society, covering all of the material from the second semester of general chemistry. The number of points earned on the final exam will be calculated by multiplying the raw number of correct answers on the exam by a factor determined by relating a middle C on the class's grading scale to the national median on the exam. There will be no penalty for incorrect answers on the final exam, and the highest score that can be earned on the exam is 100 points.

Grades: A total of 600 points are possible in the course. Letter grades will be assigned as follows:

A	600 – 540 points	100.0 – 90.0%
AB	539 – 510 points	89.9 – 85.0%
B	509 – 480 points	84.9 – 80.0%
BC	479 – 450 points	79.9 – 75.0%
C	449 – 420 points	74.9 – 70.0%
D	419 – 360 points	69.9 – 60.0%
F	359 – 0 points	59.9 – 0.0%

This course and CHE 155L have separate grades; a student must make a grade of "C" or better in *both* courses to be eligible to take any chemistry class that requires them as prerequisites.

Americans with Disabilities Act (ADA) Statement: If you have special needs because of any disability, please go to the Academic Success Center in North Walker Hall for information regarding registering as a student with a disability. You may also call 813.257.5757 or email disability.services@ut.edu. Please feel free to discuss this issue with me, in private, if you need more information.

Academic Integrity Policy: This class will follow UT's Academic Integrity Policy (<http://ut.smartcatalogiq.com/en/current/catalog/Academic-Policies-and-Procedures/Academic-Integrity-Policy>).

Academic Disruption Policy: This class will follow UT's Academic Disruption Policy (<http://ut.smartcatalogiq.com/en/current/catalog/Academic-Policies-and-Procedures/Disruption-of-the-Academic-Process>).

Emergency Preparedness: In case of any adverse condition or situation which could interrupt the schedule of classes, each student is asked to access <http://www.ut.edu> for information about the status of the campus and class meetings. In addition, please refer to <http://ut.blackboard.com> for announcements and other important information. You are responsible for accessing this information as needed.

Additional Resource: The Academic Center for Excellence (ACE, <http://www.ut.edu/ace/>) in the Academic Success Center offers tutoring in several subjects, including chemistry. This is available at no charge above your tuition.

Schedule: The following is a tentative schedule of topics to be covered and exam dates:

August 29	Liquids, Solids and Intermolecular Forces (Sections 11.2-11.3)
August 31	Liquids, Solids and Intermolecular Forces (Sections 11.4-11.6)
September 5	<i>No Class</i>
September 7	Liquids, Solids and Intermolecular Forces (Sections 11.7-11.8)
September 12	Solutions (Sections 12.2, 4-5)
September 14	Solutions (Section 12.6)
September 19	Chemical Kinetics (Sections 13.2-4)
September 21	Exam 1 (Chapters 11-12)
September 26	Chemical Kinetics (Sections 13.5-7)
September 28	Chemical Equilibrium (Sections 14.2-4)
October 3	Chemical Equilibrium (Sections 14.5-6, 14.8)
October 5	Chemical Equilibrium (Sections 14.7, 14.9)
October 10	Acids and Bases (Sections 15.3-4, 15.7)
October 12	Exam 2 (Chapters 13-14)
October 17	Acids and Bases (Sections 15.5-6)
October 19	Acids and Bases (Sections 15.8-9, 15.11)
October 24	Aqueous Ionic Equilibria (Sections 16.2-4)
October 26	Aqueous Ionic Equilibria (Section 16.5)
October 31	Free Energy and Thermodynamics (Sections 17.2-3, 17.6)
November 2	Exam 3 (Chapters 15-16)
November 7	Free Energy and Thermodynamics (Sections 17.4-5, 17.7)
November 9	Free Energy and Thermodynamics (Sections 17.8-9)
November 14	Electrochemistry (Sections 18.2-3)
November 16	Electrochemistry (Sections 18.4-5)
November 21	Electrochemistry (Sections 18.6, 18.8)
November 23	<i>No Class</i>
November 28	Radioactivity and Nuclear Chemistry (Sections 19.3, 19.6, 19.10)
November 30	Exam 4 (Chapters 17-18)
December 5	Radioactivity and Nuclear Chemistry (Sections 19.7-9)
December 7	Review
December 14	Final Exam (8:30 – 10:30 AM)

Syllabus Modifications: The professor reserves the right to make changes to this syllabus as necessary.