

CHEM1243-203: General Chemistry 2

Spring 2023 | **Course Meets:** MWF 10:00 – 10:50 am; Bolin 312

Contact Information

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Office Hours: M 8-10am; T 8-10am; W 11am-1pm

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Course Description

Second semester general chemistry introduces students to solutions, chemical thermodynamics, equilibrium, electrochemistry, and kinetics. This is the foundational course for all upper-level chemistry courses and many biology courses. Critical thinking and problem solving will be emphasized. Credit or concurrent enrollment in MATH 1233 or 1534 is **required**. Student success in chemistry is **dependent** on a firm understanding of college algebra.

Purpose of Syllabus

The purpose of the syllabus is to inform you of course expectations, policies, and content. **Ignorance of course policies because you did not read your syllabus will not be an acceptable excuse for not adhering to these policies.** Because the syllabus is online, you cannot lose it. By accepting this syllabus and remaining enrolled in the course, you affirm that you understand the contents of this syllabus and that you will adhere to its requirements.

Textbook & Instructional Materials

Textbooks are expensive. Because this is true, two 100% free textbooks will be used to provide resources that supplement the lectures and the ACS Study Guide for General Chemistry, as indicated below.

1. **REQUIRED TEXT (MUST BE PURCHASED):** an official **ACS Study Guide for General Chemistry** (full year; available from the ACS website or from the Chemistry Department). This study guide will walk you through the types of problems you need to understand and better prepare you for future chemistry courses. You should have bought one for Gen Chem 1—it is the same study guide.
2. **REQUIRED TEXT (FREE ON D2L OR ONLINE):**
 - a. **OpenStax Chemistry 2nd edition. eBook. Flowers, Theopold, Langley, Robinson. (2019, Rice University).** This is [online](#), or you can download a [free pdf](#). I also put a pdf on D2L. Lectures will be derived from this source. Note, please get the version of the textbook associated with the above hyperlink (there is another version of the textbook arranged in a different order).
 - b. **Chemical Principles, 3rd edition. Print (pdf chapters). Dickerson, Gray, Haight Jr. (1979, Benjamin Cummings).** This is a very straightforward text even if it is not as colorful as modern texts. The entire textbooks is available from the [Cal Tech](#) library system absolutely FREE.
3. **REQUIRED SLIDES AND VIDEOS:** these are all on D2L. Print the slides or put them on a tablet so you can WRITE ON THEM. This is better than just looking at them on your phone or computer while typing or spacing-out in class. If tell you to watch a video, WATCH IT!!
4. **Scientific Calculator:** bring your calculator **every** day. Seriously—every day!!
5. **Reliable Internet,** access to a personal **computer** (your own or a lab), and access to **D2L**. You must be able to access the PowerPoints, problem tutorials, answer keys, and any other material provided to the class. There is an app for D2L called **PULSE**—PUT IT ON YOUR PHONES AND PAY ATTENTION TO IT!!

Study Hours and Tutoring Assistance

For every 1 hour in class, students should spend 3 hours studying, doing homework, and otherwise preparing for this course. Free tutoring will be available during the semester. You cannot expect to do well if you do not work at it; chemistry must be practiced to be mastered. **How to use a tutor:** tutors are NOT to be given homework questions to work for you. Instead, the proper use of a tutor is to ask for explanations of given topics using non-homework problems as a guide so that you can then go home and **do your own homework!**

Expectations and Goals

It is expected that you will try your best to understand the material; complete all quizzes, exams, and assignments; ask for help when you need it; and seek to understand why you are in this class (what purpose does it serve to you, your major, and your future?). Chemistry tutors will be available throughout the semester to help you. Additionally, Khan Academy and other academic videos can be useful. I have provided PowerPoints, but these are NOT a substitute for a textbook and hard work. It is expected that you will use ALL of this material in this course.

Grading

Grades will be assessed based on the following percentages.

Table 1: Distribution of Points.

Assignments	Percentage of Grade
EXAMS (2 Midterms + Comprehensive Final (400 points)	60%
Weekly Quizzes (12 at 15 points each; lowest dropped)	30%
Homework (Variable points)	10%

Table 2: Percentage Breakdown for Final Grades.

Grade	Percentage Range
A	89.5% and higher
B	79.5% to 89.4%
C	69.5% to 79.4%
D	59.5% to 69.4%
F	59.4% and lower

Homework

Throughout the semester, homework assignments will be given. Due dates will be announced at the time the work is given. **Homework will be physically turned in on the due date or before. Homework not turned in on or by the due date will NOT be accepted.**

Looking up the answers through Google searches is called **CHEATING**. Cheating will not help you pass the quizzes or the exams. Cheating results in a zero for the assignment; repetitive cheating will earn an F in the course. **Note:** **using Chegg and ALL OTHER online resources is CHEATING.**

You are strongly encouraged to do the problems at the end of the chapters ON YOUR OWN because you want to learn. You will not learn the material if you do NOT do problems. **If you are not motivated to do problems on your own because you want to know the answer, you are in the wrong major.**

Quizzes

Quizzes will be given every Friday except exam days. Quizzes will consist of general theory and problem solving. Quizzes will test to see if you have watched the online tutorials and whether you are paying attention in class. Problem-solving will be extensive. All quizzes will be TIMED (you will not have unlimited time to complete quizzes). Quizzes are **NOT** open-note, open-book, or open-internet (NO PHONES OR SMART WATCHES). Quizzes are to represent YOUR best effort.

There will be NO make-ups for missed quizzes for any person for any reason. Each quiz will be worth 15 points and there will be a total of 12 quizzes. The lowest quiz grade will be dropped (missed quizzes beyond the 1 drop will count against you). This class is graded using percent categories—do NOT blow off the quizzes because quizzes are worth **30% of your grade**. Poor quiz scores will drag your grade down, making it impossible to make-up the difference.

Disability students must take their quizzes under the same conditions as all other students.

Midterm Exams

There will be 2 (**two**) midterm exams. Midterms will be composites of multiple-choice questions, fill-in or short-answer questions, and problems and generally will not be cumulative. Midterms are designed to test problem-solving skills. These types of exams cannot be crammed for; you must study every day to do well and to finish the exams in the allotted timeframe. All exams are TIMED. **Exam dates are listed on the Lecture Schedule and will not be moved.** **No make-up midterms will be offered to any person for any reason.**

Students with a legitimate, excusable reason for missing a midterm will be given consideration. **A substitute score based on the final will be used to replace the zero received.** Excusable reasons for missing an exam include: a) extreme and verifiable illness (you must provide doctor/hospital verification; I will not simply take your word for it that you are too ill to attend); b) accident or injury (must present verification); c) MSU sanctioned event (active participant and you must have provided official university documentation BEFORE the exam); and d) extreme family emergency (e.g., funeral the day of the exam; **immediate family only**). **Inexcusable reasons** for missing an exam include: a) scheduling doctor, dentist, therapy or other appointments for the day/time of the exam (possible exception: court dates); b) failure to show up (this includes sleeping through the exam); c) weather (if MSU is open, then you must be here); d) congested exam schedule or overlapping classes; e) failure to obtain babysitter or caregiver; and f) work schedule conflict. **Students MUST notify me PRIOR to the start of the exam to receive consideration for an excused absence.** Notifying me after the fact will result in an unexcused absence. You only get 1 excused absence.

Absolutely no electronic devices of any kind may be used during exams, INCLUDING SMART WATCHES. All exams are closed book and will be monitored for cheating. If you are caught doing anything suspicious, your exam will be taken away from you and you will receive an automatic zero for the exam. NOTE: using old notes and exams from other students to prepare for this class is considered cheating and is not allowed. Copying your notes or exams to give to others either in or out of this class is considered cheating and is not allowed. Working in small groups for the purposes of skewing exam scores is considered collusion and is not allowed.

COMPREHENSIVE Final Exam

All students are required to take the **comprehensive ACS FULL YEAR General Chemistry exit exam**. This exam is an all multiple-choice, TIMED exam. The ACS Exam is NOT a trivial exam. You MUST begin to prepare for the Final on the first day of the semester. You MUST do the assigned ACS study guide assignments to prepare. The Final Exam is 50% of your Exam grade – do NOT blow it! **You MUST go back and study first semester material to do well on this exam! Again, do NOT blow it off!!**

Attendance

Students are expected to attend all meetings of the classes in which they are enrolled. **Lecture attendance is thus required.** Students with excessive absences may be instructor dropped from the course with an “F”. Missing more than 6 classes in a MWF class is considered excessive. **ZOOM will NOT be offered.** If you miss class, YOU are responsible for getting notes from another student in class—I will NOT provide them.

Students are expected to always be ON TIME. Students are expected to have read all required materials before walking into class. If you need to leave class early, it must be for a good reason, and you must tell me before class begins or you will be marked absent.

Extra Credit

Absolutely NO extra credit of any kind will be offered for this course. You must earn your grade by doing the assigned work. Bonus questions may be appended to some exams, quizzes, or assignments, but they will represent problems you need to know how to do anyway.

Late Work

Absolutely NO late work will be accepted from anyone for any reason. Deadlines are hard deadlines. You are given at least a week to work on assignments so there is **NO EXCUSE** for you not to complete them. Note: forgetting assignments at home is NOT acceptable behavior in college, so you do NOT get to run home and get it. Assignments are due even if you are sick because you should have started working on it the day you received it. You do NOT get extensions for being in athletics or members of other traveling groups.

Make Up Work/Tests

Absolutely NO make-ups will be allowed for any assignment, quiz, or exam. Legitimate absences will be worked around (**documentation must be provided**), but not through a make-up process. Do NOT ask for a chance to take things early, late, or “at another time”.

SARS-CoV-2/Influenza Statement

SARS-CoV-2 is a real infectious agent that can and does sometimes kill those it infects. Symptoms for SARS-CoV-2 include (but are not limited to) fever greater than or equal to 100.0 °F, cough, shortness of breath or difficulty breathing, sore throat, loss of taste or smell, chills, muscle pain, and headache. Many of these symptoms overlap with those of influenza. Many people do not show symptoms, yet they are infectious. **If you have a fever, you should NOT be coming to class. If you are demonstrably ill, you should NOT be coming to class.** There is a vaccine for SARS-CoV-2; you should be vaccinated. You should know how to prevent infection. Because there is vaccine, and because you know how to prevent infection, **no accommodations will be made for anyone claiming COVID related problems.** Masks ARE allowed in my classroom, and you are encouraged to wear them if you have not been fully vaccinated.

Important Dates

Last day for term schedule changes: January 17-20, 2022

Last Day to drop with a grade of “W”: 4:00pm on March 27, 2022 (Note: you must fill out the online drop request; you can’t just stop coming to class!)

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into D2L through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program. **D2L has an app called Pulse that can be downloaded to your phone to help you keep track of your courses—USE IT!!!**

Instructor Class Policies

1. **Do not walk through the classroom or leave once class has begun (exception: sudden illness) and NEVER WALK IN FRONT OF ME ONCE I HAVE BEGUN TO LECTURE.** It is disrespectful to me and to the other students to have you cut in front of the room to get to your seat and to wander in and out. **Go to the bathroom BEFORE you walk in;** if you can't get from class to class on time, YOU need to figure out how to resolve that problem. **Do NOT be late; being late is rude to other students and to the faculty.**
2. **Do not talk during lecture except to ask questions of the instructor.** If you miss something, ask me, not the person sitting next to you.
3. **Do not engage in disruptive or disrespectful behavior.** Do not play games on your electronic devices or play with your social media sites, do homework for other classes, read books or newspapers, sleep, listen to music, etc. during the lecture; pay attention to the lecture! Do not eat or drink in class as this is prohibited in the classrooms.
4. **Turn off or silence (note: vibrate is not the same as silent) all cell phones, pagers, music devices, and other electronic devices that make noise or have the potential to disrupt the class before you walk into the room.** NO cell phones are permitted to be out and/or in my (or your) sight in this class UNLESS you are given permission to use it. If your phone is out and/or in sight and/or you are caught using it and/or it goes off during lecture, you will be asked to put it away and you will **lose 1% from your final lecture grade in the course for each violation.** If you want to use your phone to record the lecture, it must be placed at the front of the room and out of your reach. **If all you are going to do is text during class, don't bother coming and drop the course since you won't get anything from it.**
5. **YOU MUST REMOVE YOUR EARBUDS IN CLASS.** If you are listening to music, you are NOT listening to me. If you want to listen to music, don't come to class since you won't get anything from it.
6. **No laptops/tablets are allowed UNLESS YOU HAVE EXPRESSLY SOUGHT PERMISSION TO USE IT IN CLASS.** You need to physically take notes to learn the material. Again, ALL ear buds, blue-tooth buds, and headphones to phones and music devices must be turned OFF during class AND **REMOVED FROM YOUR HEAD** and put in your backpacks.

Disruptive students will be given one (1) verbal warning to improve their behavior. Second offenders will be asked to leave the classroom and will be referred to the Dean of Students. Abusive students will be dismissed from the class permanently.

University Teams and Organizations

All members of **in-season sports** teams or other campus organizations who will be missing class because of university sanctioned events **MUST** present to me a written statement on university letterhead and signed by a university official indicating those dates that will be missed because of travel or participation in the university-sponsored event. Athletics documentation must be presented to me within the first 2 weeks of the beginning of the semester. Other documentation (such as for theater, etc.) must be presented to me at least one week prior to the time that will be missed. NOTE: if you KNOW you will be missing more than 3 classes during the semester, you **MUST** come talk with me the first week.

Services for Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. **The instructor then needs to be notified by the student of the nature of these accommodations. This notification will take the form of an official letter obtained from DSS by the student and given to the instructor.** Every effort should be made to provide me with this documentation within the first 2 weeks of the semester to avoid losing accommodations because you failed to provide proper notification in a timely manner. **It is always the responsibility of the student to arrange accommodations with DSS.** Students with disabilities must still take their exams on the same day as the rest of the class. For more details, please go to Disability Support Services.

College Policies

1. **Campus Carry Rules/Policies:** Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's Campus Carry homepage. If you have questions or concerns, please contact MSU Chief of Police Patrick Coggins at patrick.coggins@mwsu.edu.
2. **Smoking/Tobacco Policy:** College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.
3. **Alcohol and Drug Policy:** To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.
4. **University Code of Conduct:** In general, students are to attend all meetings of all classes; instructors may drop students for excessive absences, indifference, disruptive behavior, or failure to complete class assignments; students are prohibited from cheating, plagiarizing, or colluding. Students are expected to have read the Student Handbook.
5. **Academic Dishonesty:** Cheating, plagiarism, and collusion (as well as several other forms of conduct) are all strictly prohibited at MSU. Please read the MSU Student Handbook definitions of cheating, plagiarism, and collusion and MAKE SURE that you do not engage in any of these behaviors. If you are unclear on what may count as cheating, plagiarism, or collusion after reading the material below, please see the instructor or the Dean of Students.
 - a. The term "**cheating**" includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or exams; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other

- assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the faculty, staff, or another student.
- b. The term “**plagiarism**” includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. Plagiarism also includes the use of someone else's thoughts, words, ideas, or lines of argument in your own work without appropriate documentation (a parenthetical citation at the end and a listing in "Works Cited") whether you use that material in a quote, paraphrase, or summary. It is a theft of intellectual property and will not be tolerated, whether intentional or not.
 - c. The term “**collusion**” means collaboration with another person in preparing any work offered for credit if that collaboration is not authorized by the faculty member in charge.
 - d. **Student Honor Creed:** “As an MSU Student, I pledge not to lie, cheat, steal, or help anyone else do so.” You should memorize this and live by it.
 - e. **Any form of cheating will result in a 0 (zero) for the assignment/exam/quiz.** Repeated cheating will result in an F in the course and an instructor drop (with F).
6. **Safe Zones Statement:** The professor considers this classroom to be a place where you will be treated with respect as a human being regardless of gender, race, ethnicity, national origin, religious affiliation, sexual orientation, political beliefs, age, or ability. Additionally, diversity of thought is appreciated and encouraged, provided you can agree to disagree. It is the professor's expectation that ALL students consider the classroom a safe environment.
 7. **Instructor Drops:** According to the MSU Student Handbook, “An instructor may drop a student any time during the semester for excessive absences, for consistently failing to meet class assignments, for an indifferent attitude, or for disruptive conduct.” For the purposes of this course, “consistently failing to meet class assignments” includes consistently not turning in assigned work or turning in work that consistently receives a failing grade.
 8. **Intellectual Property:** By enrolling in this course, the student expressly grants MSU a “limited right” in all intellectual property created by the student for the purpose of this course. The “limited right” shall include but shall not be limited to the right to reproduce the student’s work product to verify originality and authenticity, and for educational purposes.

Study Tips

1. Every day you should go home and go through your notes. **Annotate** them, expand them, mark what is difficult. Then, go to the book and review only the problem sections and add to your notes. Notes are only useful if they are annotated. The more you write, the more you learn.
2. **DISSECT** the worked problems in the text to make sure you understand where the numbers come from and what they mean. Then, do the sample problems in the those boxed problems. Then, go to the end of the chapter and do some of those problems, too. You CANNOT learn chemistry without doing a lot of problems. Moreover, you must be motivated to do problems on your own knowing that they will help you do better on quizzes and exams even if they do not directly earn you points.
3. **Study and review EVERY DAY.** You cannot be an A student without a lot of work.
4. **Do your OWN work.** You can form study groups, etc., but do your own problems. Missing points tells you what you don’t know; googling answers just shows you can cheat.

Schedule (subject to change at the discretion of the instructor)

WEEK	DATE	Topic	Quiz/Exam
1	Jan 16	MLK HOLIDAY	
	Jan 18	Course Introduction/How to Study	
	Jan 20	Slide Show 1: Liquids, Solids, and Solutions	Quiz 1
2	Jan 23		
	Jan 25		
	Jan 27		Quiz 2
3	Jan 30		
	Feb 1		
	Feb 3		Quiz 3
4	Feb 6		
	Feb 8		
	Feb 10		Quiz 4
5	Feb 13		
	Feb 15		
	Feb 17	EXAM 1: Slide Show 1	
6	Feb 20	Slide Show 2: Kinetics	
	Feb 22		
	Feb 24		Quiz 5
7	Feb 27		
	Mar 1		
	Mar 3		Quiz 6
8	Mar 6	Slide Show 3: Chemical Equilibria	
	Mar 8		
	Mar 10		Quiz 7
9	Mar 13-17	SPRING BREAK	
10	Mar 20		
	Mar 22		
	Mar 24		Quiz 8
11	Mar 27		
	Mar 29		
	Mar 31	EXAM 2: Slide Show 2 and Partial 3	
12	Apr 3		
	Apr 5		
	Apr 7	HOLIDAY BREAK	
13	Apr 10	Slide Show 4: Thermodynamics	
	Apr 12		
	Apr 14		Quiz 9
14	Apr 17		
	Apr 19		
	Apr 21	Slide Show 5: Electrochemistry	Quiz 10
15	Apr 24		
	Apr 26		
	Apr 28		Quiz 11
16	May 1		
	May 3	Slide Show 6: Nuclear Chemistry	
	May 5		Quiz 12
FINALS WK	Wednesday May 10	ACS FULL YEAR EXIT EXAM: 10:30am – 12:30pm Bolin 312	FINAL EXAM