

CHEM1243-101: General Chemistry 2

Fall 2021 | **Course Meets:** TR 9:30 – 10:50 pm; Bolin 100

Contact Information

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Twitch: ChemistryJujitsu

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.

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 also available 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

1. *Chemistry: The Central Science*, 14th edition. Print (Pearson), Brown, LeMay, Bursten, Murphy, Woodward, and Stoltzfus (older editions will also work). **A book is ESSENTIAL and is therefore REQUIRED.**
2. An official **ACS Study Guide for General Chemistry** (full year; available from the ACS website or from the Chemistry Department) is **STRONGLY recommended**. This study guide will walk you through the types of problems you need to understand and better prepare you for future chemistry courses.
3. **Scientific Calculator:** bring your calculator every day. **I am not kidding on this.** You really need a calculator.
4. **Reliable Internet** and access to a personal **computer** (your own or a lab). You must be able to play pre-recorded lectures and tutorials as well as extra study guides, answer keys, etc. You should have a webcam.
5. Access to **D2L** and all materials—including lectures—that are there. You will need to access lecture recordings, homework and answer keys, online tutorials, and extra reading assignments.
6. **Scanning Capability:** either download a free scanner app for your phone or have scanning technology. You will need to upload work for quizzes, exams, and homework as pdf files IF REQUIRED.
7. **Printing Capability:** if you do not own a printer, there are printers on campus. When you are told to print assignments and turn them in, it is expected that you follow directions.
8. **Stapler:** there is no excuse for not turning in stapled work. Unstapled work will be thrown out and not graded (and you receive a zero as a result).

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 uploaded full lectures, help guides, and chemistry problem podcasts. It is expected that you will use ALL of this material.

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)	25%
Homework (Variable points)	15%

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.** All homework not turned in physically in class must be scanned as a pdf and uploaded to specific Dropbox folders you will find on D2L by the deadlines given. Free scanning software is available for most phones and/or you can use an actual scanner. **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 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.

ACS Practice Questions

Throughout the semester, you may be given practice problems from the ACS study guide to work on as part of your homework assignments. Questions from the study guide are designed to help you do better on the ACS final exam so it is in your best interest to do them. 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.

Quizzes

Quizzes will be given every Thursday except exam days. Quizzes will consist of general theory and problem solving. Quizzes will test to see if you have watched the online lectures 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). Quizzes are to represent YOUR best effort.

There will be NO make-ups for missed quizzes. 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 20% 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.**

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. 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 that covers BOTH Gen Chem 1 and Gen Chem 2. 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!

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: August 26, 2021

Last Day to drop with a grade of “W”: 4:00pm on October 25, 2021

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 all of your courses—USE IT!!!**

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 3 classes in a TR 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.

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. **No laptops/tablets are allowed UNLESS YOU HAVE EXPRESSEDLY SOUGHT PERMISSION TO USE IT IN CLASS.** You need to physically take notes to learn the material. 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. It is **STRONGLY** recommended that you buy AND USE the ACS General Chemistry Study Guide. The study guide is for the full year (focus only on the First Semester material at the front of the book), provides instruction on how to solve problems, and gives you sample ACS problems. You will be assigned questions from this study guide, so buying it makes sense.
2. 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.
3. **DISSECT** the green box 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 green boxes. 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.
4. **Study and review EVERY DAY.** You cannot be an A student without a lot of work.
5. **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.

Notice

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

Course Format:

1. This class will be taught as a **hybrid flipped classroom**. Students are responsible for listening to **audio PowerPoint lectures found on D2L and reading the corresponding sections in the textbook prior to coming to each class. Class time will be reserved for problem-solving practice, answering questions, and discussions.** Most of class time will be spent problem solving.
2. Each chapter has its own folder on D2L. In this folder, you will find the **Audio PowerPoint** and, in most cases, **additional reading material/notes** for that chapter. You will also find a **mini lecture with problems**; these will be discussed specifically in class. You should **DOWNLOAD AND PRINT** these mini lectures and problems to take notes on in class. **Tutorial videos** are also available in many cases.
3. Match your **ACS study guide** to the lectures. The study guide provides extra problems and you will be assigned some of these as homework.

Schedule

Week	Dates	Topics/Problems	Quiz/Exam
1	T Aug 24	Course Introduction; How to Study Chemistry	
	R Aug 26	Cp. 11: Liquids and Intermolecular Forces Mini + Problems; ACS Chapter 8	Quiz #1
2	T Aug 31		
	R Sept 2		Quiz #2
3	T Sept 7	Cp. 12: Solids and Modern Materials Mini + Problems; ACS Chapter 8	
	R Sept 9		Quiz #3
4	T Sept 14	Cp. 13: Properties of Solutions Mini + Problems; ACS Chapter 9	
	R Sept 16		Quiz #4
5	T Sept 21		
	R Sept 23	EXAM 1: CHAPTERS 11 – 13	EXAM #1
6	T Sept 28	Cp. 14: Chemical Kinetics Mini + Problems; ACS Chapter 10	
	R Sept 30		Quiz #5
7	T Oct 5		
	R Oct 7	Cp. 15: Chemical Equilibrium Mini + Problems; ACS Chapter 11	Quiz #6
8	T Oct 12		
	R Oct 14		Quiz #7
9	T Oct 19	Cp. 16: Acid-Base Equilibrium Mini + Problems; ACS Chapter 12	
	R Oct 21		Quiz #8
10	T Oct 26		
	R Oct 28	EXAM 2: CHAPTERS	EXAM #2
11	T Nov 2	Cp. 17: Additional Aspects of Aqueous Equilibria Mini + Problems; ACS Chapter 13	
	R Nov 4		Quiz #9
12	T Nov 9		
	R Nov 11	Cp. 19: Chemical Thermodynamics Mini + Problems; ACS Chapter 14	Quiz #10
13	T Nov 16		
	R Nov 18	Cp. 20: Electrochemistry Mini + Problems; ACS Chapter 15	Quiz #11
14	T Nov 23		
	R Nov 25	THANKSGIVING HOLIDAY – NO CLASS	NO Quiz
15	T Nov 30		
	R Dec 2	Cp. 21: Nuclear Chemistry Mini + Problem; ACS Chapter 16	Quiz #12
FINALS	T Dec 7	FINAL EXAM 8:00 – 10:00 pm; FULL YEAR ACS EXIT EXAM	