



CHEM1243-102: General Chemistry 2

McCoy College of Science, Mathematics & Engineering

Fall 2020

MWF 8:00 – 8:50 am; BO304

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.

SARS-CoV-2/Influenza Statement

SARS-CoV-2 is a real infectious agent that should not be taken lightly. SARS-CoV-2 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. For your own safety and the safety of those around you, MSU is requiring daily self-checks for health, mask-wearing, and other forms of sanitation. You should adhere to all university requirements.

All members of the MSU Texas community should undergo daily health screening assessments, **which include checking temperature**. For my class, all students are REQUIRED to download and use one of the two Covid-19 self-checkers listed below:

1. The MSU Safety App provides a link to a COVID-19 screening assessment. The MSU Safety App is available on the [Apple Store](#) or [Google Play App Store](#).
2. The Centers for Disease Control and Prevention (CDC) offers a [Coronavirus Self-Checker](#). If taking the survey from your phone, the best way to capture the results is to take a picture or screenshot. If taking from a computer, you can screenshot the results or save as a pdf file.

Masks are mandatory on campus and in my classroom. You must wear a mask for the duration of the class period. You must wear your mask properly! That means you must wear it over your nose as well as your mouth. Refusal to wear a mask puts everyone at risk and you will be asked to leave the class and not return until you are wearing a mask.

MSU has developed a [MSU Texas Return to Campus website](#) in addition to a Covid-19 dedicated page that will provide you with additional information regarding academic instruction, health and safety, campus life, and business operations. Check these sites every day for new information.

It is possible that MSU will need to return to online-only instruction. You should be prepared for this. Students should make every effort to ensure access to a personal computer and internet service.

COVID CAPS: To maintain social distancing, some classes will need to be split into groups (physically present and livestream present) to alternate days of attendance. Should this become necessary, more information will be given.

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.
2. Scientific Calculator: **bring your calculator every day**.
3. Reliable Internet and access to a personal computer (your own or a lab). You must be able to livestream lectures as well as play pre-recorded lectures. You should have a webcam.
4. 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.
5. 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.
6. An official ACS Study Guide for General Chemistry (full year; available from the ACS website; STRONGLY suggested); this will walk you through the types of problems you need to understand and better prepare you for future chemistry courses.

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.

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?).

Grading

Grades will be assessed from straight points. There will be NO extra credit. To determine your grade percentage at any time, take the total points you have EARNED to that point and divide by the total points POSSIBLE to that point. Then, compare to Table 2.

Table 1: Distribution of Points.

Assignments	Points towards grade
Midterms (2 at 100 points each)	200
Chapter Quizzes (9 at 20 points each; lowest dropped)	160
Daily Problems/Homework	Variable
Comprehensive Final Exam (ACS or otherwise)	200
Attendance (Live or Virtual)	50

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

Daily Problems/Homework

Throughout the semester, daily problems and/or homework assignments will be given. Due dates will be announced at the time the work is given. All daily problems and homework not done 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. All assignments must be in pdf format to be graded. Failure to meet the deadline or to upload as a pdf will result in a grade of zero (0).

Looking up the answers through Google searches is called CHEATING. Cheating will not help you pass the quizzes or the exams.

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 after each chapter has been completed, generally on the class day following completion of the chapter. Quizzes will consist of two sections, general theory and problem solving.

Quizzes will be mostly online. General theory questions will be multiple-choice. Problem-solving will require you to solve the problem on paper and then scan and upload your answer. Some math problems for quizzes may be given in class. Both quiz sections will be TIMED (you will not have unlimited time to complete quizzes). Quizzes are NOT open-note, open-book, or open-internet; you may NOT do quizzes alongside other students. 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 10 quizzes. The lowest quiz grade will be dropped (missed quizzes beyond the 1 drop will count against you). This class is graded on straight points—do NOT blow off the quizzes. 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 and written questions 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. Exams will be administered with an online multiple-choice portion and an in-class problem-solving portion. Both sections will be 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); b) accident or injury (must present verification); c) MSU sanctioned event (active participant and you must have provided 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 will be required to take a comprehensive final exam. Normally, the ACS Full Year General Chemistry exit exam would be given during finals week. However, due to going completely online following the Thanksgiving Break, a substitute comprehensive exam covering second semester ONLY

will be given instead. This will be an online, all multiple-choice, TIMED exam. This is NOT a trivial exam. You MUST begin to prepare for the Final on the first day of the semester.

Extra Credit

Absolutely **NO** extra credit will be offered for this course.

Late Work

Absolutely **NO** late work will be accepted. Deadlines are hard deadlines.

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.

Important Dates

Last day for term schedule changes: August 24 – 26, 2020.

Last Day to drop with a grade of “W:” 4:00pm on Friday, December 4, 2020.

Refer to: [Drops, Withdrawals & Void](#)

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.

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. Attendance is expected whether you are physically in the class or viewing livestream through D2L or ZOOM.

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

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**. Do not talk during lecture except to ask questions of the instructor. 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 unless you can do so quietly.

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.

No laptops/tablets are allowed UNLESS YOU HAVE EXPRESSELY 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.

If you are attending lecture via D2L or ZOOM, please do so from a quiet environment or mute your microphone so the class is not interrupted by outside noise.

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](#).

ALL COVID ACCOMMODATIONS MUST BE ACCOMPANIED BY DOCUMENTATION FROM DSS. You may not stay home “just because”. Students with DSS accommodations will likely need to do all quizzes and exams online and submit written work via scanned pdf.

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.”
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 see some of these problems on your quizzes.
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. You must put in the time to gain the benefit.
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.
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.
3. The number of slides for a given chapter can be roughly divided by the number of days assigned to that chapter unless otherwise specified.
4. Look at assigned problems listed in the syllabus prior to class. These problems will be solved in class and then additional problems will be assigned as homework. These problems are representative of quiz and exam problems. Problems are from the 14th edition of the textbook.
5. Quizzes will be made available online immediately following class and will remain open until **midnight** of the day they become available. Total time allotted for quizzes will not exceed 20 minutes (once you begin the quiz, you must complete both the multiple-choice and problem-solving sections).

*The schedule on the next page is subject to change. Please note that continued spread of SARS-CoV-2 could result in this class going fully online at any time. Please make sure that you have access to a computer and internet **BEFORE** there is an emergency.*

Schedule

Week	Dates	Topic/Assignments	Quiz/Exam
1	M Aug 24	Course Introduction; How to Study Chemistry	
	W Aug 26	Cp. 11: Liquids and Intermolecular Forces (23 slides; do 1 st 12 slides for the 26 th) Problems 11.12, 11.24, 11.32	
	F Aug 28	Next 6 slides Problems 11.34, 11.35	
2	M Aug 31	Next 5 slides Problems 11.44, 11.46	
	W Sep 2	Phase change problems	
	F Sep 4	Cp. 12: Solids and Modern Materials (22 slides; cover all slides for 4 th) Problems 12.4, 12.6	Cp. 11 Quiz
3	M Sep 7	LABOR DAY—Holiday (No class)	
	W Sep 9	Problems 12.9, 12.12	
	F Sep 11	Problems 12.36, 12.40	
4	M Sep 14	Cp. 13: Properties of Solutions (27 slides; split roughly equally across days) Problems 13.2, 13.22	Cp. 12 Quiz
	W Sep 16	Problems 13.24, 13.27	
	F Sep 18	Problems 13.34	
5	M Sep 21	Problems 13.39, 13.43	
	W Sep 23	Problems 13.74 (13.91, 13.108)	
	F Sep 25	EXAM 1: CHAPTERS 11 – 13	
6	M Sep 28	Cp. 14: Chemical Kinetics (22 slides; split roughly equally across days) Problems 14.19, 14.22	Cp. 13 Quiz
	W Sep 30	Problem 14.35	
	F Oct 2	Problems 14.38, 14.69	
7	M Oct 5	Problems 14.93, 14.116, lab method for solving rate law	
	W Oct 7	Cp. 15: Chemical Equilibrium (23 slides; split theory over Oct 7 & 9, then rest) Problems 15.15, 15.17	Cp. 14 Quiz
	F Oct 9	Problem 15.23	
8	M Oct 12	Problems 15.36, 15.50	
	W Oct 14	Problem 15.76, online problem key (equilibrium works both ways)	
	F Oct 16	Cp. 16: Acid–Base Equilibria (25 slides; split theory over Oct 16, 19, 21, then rest) Problems 16.13, 16.16	Cp. 15 Quiz
9	M Oct 19	Problems 16.35, 16.44	
	W Oct 21	Problem 16.53	
	F Oct 23	Problems 16.62, 16.72	
10	M Oct 26	Problem 16.108	
	W Oct 28	Cp. 17: Additional Aspects of Aqueous Equilibria (24 slides; split roughly equally for first 3 days of chapter) Problem 17.15	Cp. 16 Quiz
	F Oct 30	EXAM 2: CHAPTERS 14 – 16	
11	M Nov 2	Problem 17.22	
	W Nov 4	Problems 17.40, 17.76	
	F Nov 6	Problems 17.53, 17.96	

Week	Dates	Topic/Assignments	Quiz/Exam
12	M Nov 9	Cp. 19: Chemical Thermodynamics (22 slides; split roughly equally across days) Problem 19.20	Cp. 17 Quiz
	W Nov 11	Problem 19.24	
	F Nov 13	Problem 19.58	
13	M Nov 16	Problem 19.78	Cp. 19 Quiz
	W Nov 18	Cp. 20: Electrochemistry (24 slides; split in half over Nov 18 & 20) Problem 20.20	
	F Nov 20	Problem 20.36	
14	M Nov 23	Problem 20.54 <i>Last day of physical classes</i>	
	W Nov 25	THANKSGIVING—NO CLASS	
	F Nov 27	THANKSGIVING—NO CLASS	
15	M Nov 30	Online: Problem 20.68	Cp. 20 Quiz
	W Dec 2	Online: Cp. 21 Nuclear Chemistry (online notes; no quiz) Problem 21.5	
	F Dec 4	Online: REVIEW for comprehensive final	
16	FINALS	Wednesday, December 9, 2020 from 8:00am to 10:00am <i>The final is fully online, but you will be required to submit pdfs of your work for certain problems.</i>	