CHEM1143-201: General Chemistry 1

Spring 2020

**Course Meets:** MWF 8:00 – 8:50 am; Bolin 304

## **Contact Information**

**Instructor:** Elizabeth A. Machunis-Masuoka, PhD, MA

**Office:** BO307D

**Office Hours by Appointment Only:** M 9:00 – 10:00 am; T 10:00 – 12:00 am; W 10:00 am – 12:00 pm

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**Twitch:** ChemistryJujitsu

## **Course Description**

First semester general chemistry introduces students to atomic and molecular structure, periodic law, states of matter, and chemical reactions. 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.

## **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](https://webmail.msutexas.edu/owa/redir.aspx?C=i9mJSc_F7YqUs3F9IlwF56NBEJm_BNpe_RXPYAgcUjotyO35pSHYCA..&URL=https%3a%2f%2fapps.apple.com%2fus%2fapp%2fmsu-safety%2fid1141951126) or [Google Play App Store](https://webmail.msutexas.edu/owa/redir.aspx?C=gedn0PLEN-bh3x_pTUAby5N2vnJLlLH_U2k26OmC5VctyO35pSHYCA..&URL=https%3a%2f%2fplay.google.com%2fstore%2fapps%2fdetails%3fid%3dcom.cutcom.apparmor.mwsu%26hl%3den_US).
2. The Centers for Disease Control and Prevention (CDC) offers a [Coronavirus Self-Checker](https://webmail.msutexas.edu/owa/redir.aspx?C=itrvA_1oThWjP1X_Sx84q-uEWAkCV6KtSjUQLX959fktyO35pSHYCA..&URL=https%3a%2f%2fwww.cdc.gov%2fcoronavirus%2f2019-ncov%2fsymptoms-testing%2fsymptoms.html). 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 and wearing it properly.**

MSU has developed a [MSU Texas Return to Campus website](https://webmail.msutexas.edu/owa/redir.aspx?C=f125CX5YId-0uzdZ-HYEZZaO3xoX5m8IpF2PQgeZ0J8tyO35pSHYCA..&URL=https%3a%2f%2fmsutexas.edu%2freturn-to-campus%2fmsu-texas-commitment.php) 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. You should make a habit of checking 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.

## **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. **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.
7. **Stapler**: there is no excuse for not turning in stapled work.
8. 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. You cannot expect to do well if you do not work at it; chemistry must be practiced to be mastered.

## **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.

## **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) | 20% |
| Homework | 20% |

**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. 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. 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. Cheating results in a zero for the assignment; repetitive cheating will earn an F in the course.

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. 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 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, 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); 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. If we have in-person exams, the ACS First Semester General Chemistry exit exam will be administered during finals week. If we do not have in-person exams, a substitute comprehensive exam will be given instead. This will be an online, all multiple-choice, TIMED exam. Neither the ACS Exam nor my exams are trivial exams. 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: January 11 – 13, 2021.

Last Day to drop with a grade of “W:” 4:00pm on Friday, April 23, 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.

## **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. **ZOOM is ONLY for students in quarantine or isolation**; it is NOT there for you to skip class.

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. Do NOT be late; being late is rude to other students and to the faculty.

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](mailto: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.
   1. 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.
   2. 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.
   3. 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.
   4. **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.
   5. **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 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. Thus, Chapter 1 is 14 slides on two days, meaning that each class roughly covers material from 7 slides.
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.

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 (Mini refers to mini lecture; not meant to replace audio lectures)**

| **Week** | **Dates** | **Topics/Problems** | **Quiz/Exam** |
| --- | --- | --- | --- |
| 1 | M Jan 11 | Course Introduction; How to Study Chemistry |  |
| W Jan 13 | **Chapter 1: Matter, Energy, and Measurement** **Mini** (14 slides)  Problems 1.13 and 1.18 |  |
| F Jan 15 | Problem 1.62 | Quiz #1 |
| 2 | **M Jan 18** | **MLK Holiday – No School** |  |
| W Jan 20 | Problem 1.90 |  |
| F Jan 22 | **Chapter 2: Atoms, Molecules, and Ions Mini** (19 slides) | Quiz #2 |
| 3 | M Jan 25 | Problem 2.29 |  |
| W Jan 27 | Problems 2.45 and 2.64 |  |
| F Jan 29 | Problems 2.65 and 2.72 | Quiz #3 |
| 4 | M Feb 1 | **Chapter 3: Chemical Reactions and Reaction Stoichiometry Mini** (24 slides)  Using Problem 3.13a as model |  |
| W Feb 3 | Problem 3.27 |  |
| F Feb 5 | Problem 3.58 | Quiz #4 |
| 5 | M Feb 8 | Problem 3.64 |  |
| W Feb 10 | Problem 3.84 |  |
| **F Feb 12** | **EXAM 1: CHAPTERS 1 – 3** | **EXAM #1** |
| 6 | M Feb 15 | **Chapter 4: Reactions in Aqueous Solution Mini** (22 slides) |  |
| W Feb 17 | Problems 4.18 and 4.39 combined |  |
| F Feb 19 | Problem 4.78 and other molarity | Quiz #5 |
| 7 | M Feb 22 | Problem 4.84 and titration concepts |  |
| W Feb 24 | Problem 4.112 and titration concepts |  |
| F Feb 26 | **Chapter 5: Thermochemistry Mini** (26 slides; split for 2/26 and 3/1) | Quiz #6 |
| 8 | M Mar 1 | Problem 5.46 |  |
| W Mar 3 | Coffee Cup Calorimeter |  |
| F Mar 5 | Problem 5.77 | Quiz #7 |
| 9 | M Mar 8 | Problem 5.110 |  |
| W Mar 10 | **Chapter 6: Electronic Structure of Atoms Mini** (25 slides) |  |
| F Mar 12 | Problems 6.11 and 6.69 combined | Quiz #8 |
| 10 | M Mar 15 | Problem 6.73 and Periodic Table |  |
| W Mar 17 | Hard Configurations using the Periodic Table |  |
| **F Mar 19** | **EXAM 2: CHAPTERS 4 – 6** | **EXAM #2** |
| 11 | M Mar 22 | **Chapter 7: Periodic Properties of the Elements Mini** (25 slides) using Problem 7.4 |  |
| W Mar 24 | Problems 7.28 and 7.34 combined |  |
| F Mar 26 | Problems 7.62, 7.68 | Quiz #9 |
| 12 | M Mar 29 | **Chapter 8: Basic Concepts of Chemical Bonding Mini Part 1** (25 slides); using audio lecture slides |  |
| W Mar 31 | **Chapter 8 Mini Part 2** |  |
| **F Apr 2** | **Holiday Break – No School** |  |
| 13 | M Apr 5 | Problems 8.39, 8.42 |  |
| W Apr 7 | **Chapter 9: Molecular Geometry and Bonding Theories Mini** (22 slides) using 9.26 |  |
| F Apr 9 | Problem 9.42 building from 9.26 | Quiz #10 |
| 14 | M Apr 12 | Problem 9.113 |  |
| W Apr 14 | Chapter 6-9 amino acid model tying concepts together |  |
| F Apr 16 | **Chapter 10: Gases Mini** (24 slides) | Quiz #11 |
| 15 | M Apr 19 | Problem 10.26 |  |
| W Apr 21 | Problem 10.56 |  |
| F Apr 23 | Problem 10.72 | Quiz #12 |
| **FINALS** | **W Apr 28** | **FINAL EXAM 8:00am – 10:00am; Cumulative** |  |