THE OHIO STATE UNIVERSITY

CHEMISTRY 1250 – General Chemistry I
Spring 2022 Lecture Syllabus

TR | 2:20pm – 3:40pm | Evans Lab 2004 **4 credit hours**

Introduction

Instructional Team	
Lecturer:	Dr. Robert J. Zellmer www.asc.ohio-state.edu/zellmer.1
Lab Supervisor:	Dr. Robert J. Zellmer
Course Coordinator:	Sophie White
Office & SLDS Contact:	Holly Wheaton
TA:	Matt Allen

Please see this "Contacts" page in Carmen for information on your instructors and who to contact for your unique needs.

Undergraduate Office: 614-292-6009, Celeste Laboratory, room 110 (CE 110). Holly keeps us afloat from there and has the answers to life's big and small questions. Stop by any time Monday–Friday, 8:00am–4:30pm for assistance.

Welcome to CHEM 1250! We are so glad you are here and are excited to explore general chemistry concepts with you this semester. Our goal is that you leave this course with an appreciation of how chemistry impacts your everyday lives. We also want to provide you with the foundational chemistry concepts that will facilitate your success in future science courses and careers. We understand that learning chemistry may be especially challenging in light of the COVID-19 pandemic, but our team of lecturers and administrators are deeply committed to supporting your learning journey.

This syllabus outlines the resources, policies, and procedures that will ensure your success in this course. Please familiarize yourself with this syllabus and keep it in a convenient place for reference throughout the semester. You may find it helpful to download the syllabus on the Notability iPad app to make personal notes on it. If you have questions or concerns about the syllabus, please contact your lecturer, Dr. Zellmer at zellmer.1@osu.edu.

Carmen: carmen.osu.edu: Carmen is the Learning Management System (LMS) used at Ohio State. It is the central hub from which your course will be conducted. Everything you need for the course is available in and communicated through Carmen or Dr. Zellmer's personal class web pages (which can be reached from Carmen). Daily engagement with it is crucial to your success in this course. It is important that you check your Carmen notification settings to ensure you receive course announcements in a timely manner. You can find instructions on how to set your Carmen notifications if you click option **#2** on this webpage.

Log in to Carmen to:

- Access your textbook and course materials
- Read important announcements
- Interact with your instructional team
- Complete assignments
- Turn in lab reports
- Take exams and quizzes
- View your grades
- Find complete policies
- Locate learning and personal resources

A free Canvas app is available to download for both Android and iOS, making it easy to log in to your course from anywhere. However, not all things can be done in this app (such as exams/quizzes).

Required Text and Other Materials: The textbook and online homework software for the lecture portion of this course are provided by and accessible through Carmen. You do not need to purchase a textbook for the course; instead, you will be charged for your access to the e-text and online homework software through a "Carmenbooks fee" of $45 on your statement of account. You can learn more about the e-textbook fee for this course (including how to opt-out) by visiting the "Textbook Information" Carmen page.

If you work better with a hard copy of the textbook, you can purchase one at a bookseller of your choice. A hard copy of the text is *not* sold in the university bookstore. The textbook is *Chemistry: The Central Science*, 14th edition, by Brown, LeMay, Bursten, Murphy, Woodward, & Stoltzfus.

Required laboratory materials appear in the lab section at the end of this syllabus. The lab manual is in digital format and the access code can be purchased from Barnes and Noble. See Carmen for details.

All components of CHEM 1250 require a calculator. Only four calculator models are approved for use in this course. Please note that these are the only calculators permitted during exams:

- Texas Instruments TI-30XIIS
- Texas Instruments TI-30Xa
- Texas Instruments TI-83
- Texas Instruments TI-84

If you do not already own one of these calculators, the most cost-effective models are the TI30Xiis and the TI30Xa. You can purchase your calculator at the retailer of your choice.

Course Components

Your CHEM 1250 course consists of four components that meet at different times.

1. Two lecture sessions

(80 minutes)

a. Your lecture schedule appears on page 6.
b. Though attendance is not directly graded in lecture, being present and engaged during lecture sessions is integral to your understanding of the course material.
c. Your point of contact for lecture is Dr. Zellmer.

2. One lab

(2 hours 55 minutes)

a. The policies, procedures, and schedules for the lab component of this course appear later in this syllabus.
b. The lab portion of this course will be scaled to be worth 20% of your total course grade. However, **a minimum of 50% of the total lab points is required to pass the overall course**. See the section about lab later in this syllabus.
c. Your first point of contact for lab is your lab TA, who you will meet on the first day of lab. For more complicated questions and concerns about lab, contact your Lab Supervisor, Dr. Zellmer.

3. Exams

(three 75-minute midterms and one 105-minute final)

a. Exams take place *outside of* regularly scheduled class time
b. Exam information and the exam schedule appear on page 8.
c. Your point of contact for exams is your Course Coordinator, Sophie White at genchemexams@osu.edu. Please state your course (CHEM 1250) when emailing.

Health and Safety

Classroom Safety Measures: We will follow all university guidelines regarding classroom safety. Since these guidelines may change during the semester given the unpredictable nature of the COVID-19 pandemic, you can find the latest updates to university safety guidelines here. As of the time this syllabus is released, all students, faculty, and staff are required to wear masks in classrooms and other shared indoor spaces.

COVID-19 Absences: The university's office of Student Life Disabilities Services (SLDS) will give you the documentation and resources you need if you contract COVID-19, must quarantine due to COVID-19, or have a high-risk factor that leaves you vulnerable to COVID-19. Please request temporary accommodations for COVID-related conditions through SLDS's online form and reach out to Dr. Zellmer and your Lab Supervisors to make a personalized plan for your academic progress while you recover.

Accommodations for other illnesses: If you experience a serious illness that necessitates an extended absence, please reach out to Dr. Zellmer to make alternative arrangements for your success. We will request documentation if your absence requires you to take a make-up exam. If you need to request a make-up exam, please make sure you fill out the make-up request form.

Course Information and Policies

Communication: Your instructional team will communicate important information to you throughout the term via Carmen announcements and your Buckeyemail email account. Please verify that your OSU email is set up appropriately on your electronic devices so we can keep in touch. We highly recommend that you check email and Carmen at least once per day.

Enrollment Information: In accordance with federal regulations (Title IX), we must report your attendance status to the University Registrar after the first week of classes. The Academic Misconduct Quiz is the assignment we use to gauge your enrollment in the course. You may also hear this assignment referred to as "The COAM Quiz." If you do not complete the quiz by **11:59 PM, Sunday, January 16,** you will be reported to the Registrar as "non-attending," which may lead to disenrollment and problems with your financial aid.

Switching Sections: We are happy to help you switch sections, but after January 14, you will need permission from Holly in the Chemistry & Biochemistry (CBC) Undergraduate Studies Office to do so. Stop by the office or email Holly (wheaton.4@osu.edu) before **January 21** to switch sections. When you switch sections, ask your TA to transfer the grades you have already earned to your new section.

Switching between sections of General Chemistry is *not* permitted after **January 21.**

In accordance with the missed laboratory policy detailed in the Laboratory Section of this syllabus, if you know you will miss more than two laboratory periods (for reasons such as OSU athletic competitions, military training or duties, or religious observances), please see/contact Holly by **January 14** to move to a laboratory section that minimizes scheduling conflicts.

ONLY the Lecturer and Lab Supervisor of the course may modify due dates and assignment details in this syllabus. Teaching Assistants are ***not*** authorized to alter any syllabus information or course policies.

Goals and Outcomes

Chemistry 1250 is a physical science course in the natural science category of the GE, which has the following goals and learning outcomes:

1. Students understand the basic facts, principles, theories, and methods of modern science.
2. Students understand key events in the development of science and recognize that science is an evolving body of knowledge.
3. Students describe the inter-dependence of scientific and technological developments.
4. Students recognize social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

Course Components

Your performance in this course will be evaluated based on the components below. Sixty days after grades are posted, your grade in Carmen is considered final and all other records are destroyed. If you have a concern or question about a grade, please contact Dr. Zellmer promptly (within 1 week of receiving a score in any component of the course) and we will work to adjust any inconsistencies in a timely manner. There is **NO** extra credit in the course.

Individual assignments within the Quizzes, Exams and Laboratory categories will be scaled to contribute toward the established percentage of your total course grade:

Assignment Group	%
Mandatory Quizzes	--
Quizzes (via Carmen)	12%
Laboratory (50% required to pass course)	20%
Midterm 1	12%
Midterm 2	12%
Midterm 3	12%
Final	32%

Mandatory Academic Misconduct Quiz: Introductory assignments do not contribute to your course grade but must be completed with a 100% score to pass this course. The Academic Misconduct Quiz not only confirms your enrollment in the course, but also teaches you about academic integrity, which we take very seriously. Therefore, please complete this quiz by **11:59 pm, Sunday, January 16.** Please note that if you do not receive a 100% on this quiz by the due date, ***you will be assigned an "E" as your final course grade.*** You may take the quiz as many times as you need to receive 100%.

Additionally, the lab component of your course requires you to complete mandatory assignment/s before you can participate in laboratory activities. That information is in the Lab Section later in this syllabus.

Course Letter Grade Assignment: To ensure consistent and fair grading across semesters, grading scales in all 1000-level chemistry courses are assigned by your lecturer in consultation with the Director of General Chemistry, Dr. Patrick Woodward. *We do not use the university standard grading scale to assign overall letter grades in general chemistry courses.*

Instead, unique grading scales are assigned to students in each lecture section. The separations between each letter grade on the scale (aka "grade cuts") are determined by the overall course performance of students in your lecture section.

Because the grading scale for this course cannot be determined until all assignments have been completed, you will not see a total letter grade in Carmen throughout the semester to track your progress or anticipate your final grade. We know this is nerve-wracking, but our unique grading scales very often end up being more forgiving than the university standard grading scale.

Here is some information to help you gauge your performance throughout the semester:

- Average quiz scores typically fall in the 60-70% range.
- Average lab scores typically fall in the 75-85% range.
- Average exam scores typically fall in the 55-75% range.
- When all components are combined the average overall score for CHEM 1250 typically falls in the 60-70% range.
- The grade of those students who score very close to the class average depends on the performance of the class a whole, but a C-, C or C+ is typical.
- If you receive less than 50% of the total points available in the course, it is likely that you will earn an E.

Dr. Zellmer is happy to clarify the grading process and discuss your performance in this course.

Component Descriptions and Schedules

1. Lecture: There are no grades directly associated with lecture. Attendance is not taken but you should attend lectures if you hope to do well. Lecture topics will be covered according to the schedule below:

Lecture Schedule

Week of	*Lecture Topic*	*Chapter*
Jan. 10	Matter and Measurement, Atomic Structure, Molecules,	1, 2
Jan. 17*	Naming, Chem. Eqns., Stoichiometry	2, 3
Jan. 24	Stoichiometry, Prop. of Aqueous Solns, Aqueous Rxns, Soln. Conc.	3, 4
Jan. 31	First Law, Enthalpy, Calorimetry, Hess's Law, Enthalpy of Formation, Bohr Model, Matter & Waves, Quantum Mechanics,	5, 6
Feb. 7 Midterm 1	Quantum Mechanics, Orbitals, Electron Config., Periodic Trends, Chemical Bonding	6, 7, 8
Feb. 14	Bond Polarity, Lewis Structures, Bond Strengths/Lengths, Molecular Shapes & Polarity	8, 9
Feb. 21	Covalent Bonding, VB Theory, MO Theory, Gas Laws	9, 10
Feb. 28	Gas Laws, Kinetic Theory, Real Gases, Intermolecular Forces, Liquids	10, 11
Mar. 7 Midterm 2	Vapor Pressure, Phase Diagrams, Solid Structures, Bonding in Solids	11, 12
Mar. 14-18	**SPRING BREAK – No Classes**	
Mar. 21	Solutions, Concentration, Soln. Process, Solubility, Colligative Properties, Colloids	13
Mar. 28	Reaction Rates, Rate Laws, Integrated Rate Laws, Arrhenius Equation, Kinetic Theory, Mechanisms, Catalysis	14
Apr. 4	Equilibrium, Equil. Constants, Equil. Calculations, Reaction Quotient, Le Chatelier's Principle, Acid-Base Equilibria, Brønsted-Lowry Concept, pH Scale, Strong & Weak Acids & Bases	15, 16
Apr. 11 Midterm 3	Acidity & Structure, Salt Solutions, Lewis Concept, Chemical Thermodynamics	16,19
Apr. 18	Chemical Thermodynamics, Electrochemistry	19, 20
Apr. 25†	Final Exam is Wed., April 27	-

** No class Monday, January 17th due to Martin Luther King Day*
† Last day of class is Monday, April 25th

2. Quizzes: We do not have recitations in Chem 1250. There are some lab periods which will be used as review periods. That is part of your lab grade and is discussed in the Lab Section of this syllabus.

There will be weekly quizzes. Each quiz is worth 30 points and will be taken on Carmen. Quizzes will consist of several questions and generally cover material from the previous week and maybe part of the Tuesday lecture of the same week. This coverage may vary slightly, especially during exam weeks. I will keep you informed about what each week's quiz will cover via e-mail and my personal class web page.

- Quizzes will be available 7-10 PM Sundays. The quiz the weekend of Easter will be given the following Monday, 4/18. See the schedule below.
- You'll have 40 minutes to take an approximate 30-minute quiz. You must begin it no later than 9:20 PM to get the full 40 minutes for the quiz.
- You can use your notes, course lecture videos from Carmen, or the textbook. You cannot get help from another individual or other sources on the internet other than those provided to you from this class.
- You are not allowed to upload any portion of the quiz or answers to the internet during or after the quiz.
- Your lowest 3 quiz score will be dropped. **No** makeup quizzes will be provided. A low score resulting from a missed quiz will be one of your drops. The whole purpose of the dropped quizzes is to cover if you miss a quiz for ANY reason.

The pre-quiz (on Carmen) the first week is not for credit and is due by Friday, 11:59 PM, 1/14.

Quiz Schedule

Week	Thursday	Friday
Jan 10–14	Prequiz (due Fri. 1/14, by 11:59 PM)*	Prequiz (due Fri. 1/14, by 11:59 PM)*
Jan 17–21	Quiz 1, Sunday, 1/23	Quiz 1, Sunday, 1/23
Jan 24–28	Quiz 2, Sunday, 1/30	Quiz 2, Sunday, 1/30
Feb 1–4	Quiz 3, Sunday, 2/6	Quiz 3, Sunday, 2/6
Feb 7–11 *Midterm 1*	Quiz 4, Sunday, 2/13	Quiz 4, Sunday, 2/13
Feb 14–18	Quiz 5, Sunday, 2/20	Quiz 5, Sunday, 2/20
Feb 21–25	Quiz 6, Sunday, 2/27	Quiz 6, Sunday, 2/27
Feb 28–Mar 4	Quiz 7, Sunday, 3/6	Quiz 7, Sunday, 3/6
Mar 7–11 *Midterm 2*	No quiz	No quiz
Mar 14–18	**SPRING BREAK – No Classes**	
Mar 21–25	Quiz 8, Sunday, 3/27	Quiz 8, Sunday, 3/27
Mar 28–Apr 1	Quiz 9, Sunday, 4/3	Quiz 9, Sunday, 4/3
Apr 4–8	Quiz 10, Sunday, 4/10	Quiz 10, Sunday, 4/10
April 11–15 *Midterm 3*	Quiz 11, Monday, 4/18†	Quiz 11, Monday, 4/18†
April 18–22	Quiz 12, Sunday, 4/24	Quiz 12, Sunday, 4/24
Apr 25 – Apr 29	No quiz	No quiz

** Prequiz score does NOT count toward your final grade but the score and results will be posted in Carmen*
† Quiz 11 will be held on Monday, April 18th rather than Sunday, April 17th, due to Easter

3. Laboratory: Please consult the Lab Section of this syllabus for lab schedules, policies, and procedures.

4. Exams: All exams are administered ***in person*** on the dates and times below. Room assignments will be announced in Carmen. All exams will be completed using the iPad you received from the university's Digital Flagship program. (If you are not eligible for a Digital Flagship iPad, you will take your exams on your laptop.) As we get closer to the first midterm, details and procedures about your exams will be announced in Carmen.

Exam	Date	Textbook Coverage
Midterm 1	Tuesday, February 8 from 6:00-7:30 PM	Chapters 1-4
Midterm 2	Tuesday, March 8 from 6:00-7:30 PM	Chapters 5-9
Midterm 3	Tuesday, April 12 from 6:00-7:30 PM	Chapters 10-14
Final Exam	Wednesday, April 27 from 2:00-3:45 PM	Cumulative (1-16, 19-20)

Make-Up Exams: You can take a make-up exam for any reason, but if your reason is not on the list of acceptable reasons, you will receive a -15% grade penalty on your exam. Class conflicts and illnesses are the sort of reasons that are *not* assessed a penalty. The Make-up Midterm Policy and Make-up Final Exam Policy on Carmen provide a thorough list of reasons that qualify to waive the grade penalty. They also explain what documentation we need to verify your reason for taking a make-up. If you need to request a make-up exam, you will find the necessary request form at the bottom of the appropriate Make-up Exam Policy.

The Course Coordinators process and schedule make-up exams for all General Chemistry courses. Unfortunately, Dr. Zellmer cannot arrange make-up exams, so if you need one, you do not need to contact him. Just fill out the request form and it will reach the Coordinators. You can also reach the Course Coordinators at genchemexams@osu.edu. Please state your course (CHEM 1250) when emailing.

5. Homework: Assignments are posted on-line on Dr. Zellmer's personal course web page (not Carmen). These are the End-of-Chapter Exercises which I feel you need to be able to do or you will not learn the material and will not do well on quizzes and exams. These homework assignments will not be graded. However, doing **ALL** assigned problems is often the **best** way to determine how well you understand the material. Homework solutions may be posted online on our course web page and Carmen. The publisher's solution manual (for the 11th, 12th, 13th and 14th editions) containing worked-out solutions for every EOC problem are posted on Carmen (see "Modules" link in the menu). Use them to check your answers **after** doing **each** problem (do not do a whole bunch before checking to see if you're doing them correctly). This also allows you to check your work for other problems. Do not simply read the solutions and use them as a crutch rather than using them to help you learn the material.

6. Lecture Notes: Available on-line on Dr. Zellmer's personal course web page (not Carmen). I would suggest printing them and bringing them to lecture. It will make it easier for you to keep up. See course web pages and Carmen for additions or corrections. These are PDF files so you can use a tablet computer which, with the proper app (such as Notability on iPads), will allow you to write on them and record the lecture, a very useful feature (more useful than "Angry Birds"). Asynchronous lecture videos will be posted on Carmen using these notes. You can use the downloaded PDF during lecture and take notes on them and record the audio of the lecture.

Important Resources for Academic Success

Supplemental Lecture Videos: To support your learning, we provide short lecture videos to *supplement* (not replace) *some* of the topics covered in your in-person lectures. Your actual lecture will be more interactive, personalized to your needs, and tailored to the content on your exams. That said, the videos can help you review or better understand some of the topics covered in lecture. Links to the videos are available in the Supplemental Videos module on Carmen.

Learning Resource Center (LRC): Located in Celeste Lab (CE) 170, the LRC is where TAs hold office hours and where students can come for individual help and instruction. A schedule that lists the time each TA is available, as well as the courses they teach, is posted in the LRC and online here. Stop by when convenient during posted hours you do not need to make an appointment and you are *not* limited to meeting with your own TA. Limited evening and weekend hours will also be available through Zoom. Check the LRC schedule for details.

Additionally, the LRC has computers with general chemistry instructional programs. These programs offer single-concept problems that must be understood in order to grasp the more difficult multi-concept questions on exams. Computers are available for student use any time the LRC is open, and on a first-come, first-serve basis.

Additional Resources: The Resources page in your Carmen course offers links for help with everything from course content to mental health to finances and extracurricular involvement. It is a good place to start if you aren't sure where to go for information or assistance. Carmen is truly the beginning and end of all things.

Disability Services: The general chemistry department strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), reasonable accommodations can be established in partnership with Student Life Disability Services (SLDS).

Please note: Applying for SLDS accommodations in general chemistry is a multi-step process that involves working with both the SLDS office and our office.

- To start, first register with SLDS using this webpage.
- Next, visit this Carmen page for instructions on how to use your accommodations in the four components of CHEM 1250 (1. Lecture 2. Recitation 3. Lab 4. Exams)

We understand that this setting up SLDS accommodations can be a confusing and daunting process, but Holly is especially good at navigating the process, so please reach out to her if you have any questions or uncertainties. You can stop in the office, call (614-292-6009), or email Holly for help.

Disability Services Contacts

Contact SLDS

Email: slds@osu.edu
Phone: 614-292-3307
Address: 098 Baker Hall

Contact Holly Wheaton

Email: wheaton.4@osu.edu
Phone:614-292-6009
Address:110 Celeste Lab

Commitment to Diversity: Advancing diversity, inclusion, and student success is central to the mission of the Department of Chemistry and Biochemistry. We are excited to serve and support students from diverse backgrounds with respect to race, ethnicity, gender, sexual orientation, socioeconomic status, disability, religion, and national origin. The department's faculty and staff have collectively committed to create a welcoming and inclusive learning environment, both virtually and in-person. We want every student to successfully learn and achieve their academic and career goals.

We acknowledge that systemic racism and various forms of injustices have contributed to the marginalization and exclusion of many student populations in scientific fields of study, including chemistry. As a department, we have made progress towards enacting equity-minded actions to address systemic inequities and barriers that students encounter in the classroom, department, and university. However, we continually strive to do more to advance the success of our diverse student body. As we do the important work of teaching and supporting students, we welcome your feedback and look forward to learning from you! Please email Dr. Zellmer or the Vice Chair of Undergraduate Studies, Dr. Jane Jackman, with your suggestions, concerns, and questions. We value each student's perspectives and are excited to collectively work towards ensuring Black, Latinx, Indigenous, LGBTQ+, and female students are well-represented in scientific disciplines and professions.

Mental Health Resources: As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, feeling down, difficulty concentrating and/or lack of motivation. Mental health concerns or stressful events may lead to diminished academic performance or impact a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing.

You can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614-292--5766. You can reach an on-call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org.

Academic Conduct

ACADEMIC CONDUCT IN GENERAL CHEMISTRY

The university expects us all to know and adhere to the University Code of Student Conduct, so please do check it out here. Below are some highlights you need to know for the purposes of CHEM 1250.

Any graded material you submit (for any component of this course) must be your own work. We are obligated by university rules to report any suspicions that you have compromised academic integrity or committed academic misconduct.

Here are some examples of academic misconduct in chemistry courses:

On exams:

- Having another person take your exam.
- Receiving assistance from another person while taking the exam.
- Taking screenshots or photos of the exam.
- Using screen sharing software during the exam.
- Sharing or receiving exam questions or materials in group chats, text messages, phone calls, or on websites, apps, and the like.

On Lab Reports:

- Altering or "making-up" lab data
- Submitting a previously completed lab report (whether completed by yourself or someone else). Self-plagiarism (i.e.: submitting your own work from another course or semester) is expressly forbidden.
- Copying lab reports from another individual (reports may be submitted to TurnItIn, an originality checker.)
- Working in a group to complete your lab report
- For more information about academic misconduct in the lab portion of your course, see your lab syllabus.

And here are some hints on how you can avoid academic misconduct[1]:

1. Acknowledge Your Sources. Whenever you use words or ideas that are not your own, use quotation marks, cite your source in a footnote, and end your work with a list of sources consulted.
2. Protect Your Work. In examinations, do not allow your neighbors to see what you have written; you are the only one who should receive credit for what you know.
3. Avoid Suspicion. Do not put yourself in a position where you can be suspected of having copied another person's work, or of having used unauthorized notes to complete an assignment or exam.
4. Do your own work. The purpose of assignments is to develop your skills and measure your progress. Letting someone else do your work defeats the purpose of your education and may lead to serious charges against you.
5. Never fabricate data, citations, or experimental results.
6. Know Your Rights. Do not let other students in your class diminish the value of your achievement by taking unfair advantage. Report any academic dishonesty you see.

If you are unsure about what constitutes academic misconduct in CHEM 1250, PLEASE ASK a member of your instructional team (lecturer, lab supervisor, TA)

[1] From Northwestern University, "Academic Integrity: A Basic Guide." Pg. 5. Sept 2020. Available at https://www.northwestern.edu/provost/policies/academic-integrity/academic-integrity-guide-20201.pdf

ACADEMIC CONDUCT IN THE UNIVERSITY

The university requires that all course syllabi include the following statement on academic integrity:

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/.

Conclusion

Conclusion: We are going to have a great semester learning and experimenting together. We know this syllabus is a lot of information to digest at once but remember that there is a whole instructional team (listed on pg. 1) to guide you when you have questions. Remember to visit the “Contacts” page in Carmen to find out more about who we are and to find which one of us has the specific expertise to address your unique needs. We can’t wait to meet you!

LABORATORY

LABORATORY: Consists of one 2 hour and 55-minute session per week; YOU MAY WORK IN THE LABORATORY ONLY DURING YOUR SCHEDULED LABORATORY PERIOD! Unless otherwise instructed by the Lab Supervisor or Lab TA, you must begin the experiment listed on the syllabus each week before working on an unfinished experiment. This means you must be prepared to do the experiment listed for that day in the syllabus. Any time remaining in a lab period and the last lab (checkout) period can be used to complete a previous experiment - *discuss this with your TA first (see final report due dates below)*. Read the experiment before you come to lab so that you come **prepared** to work efficiently and carefully.

The lab points add to 1215 and will be scaled to contribute 20% of your overall course grade. **A minimum of 50% of the total lab points (607.5/1215) is necessary for a passing grade in the course.**

LABORATORY NOTEBOOKS: Will be graded. You are **required** keep a lab notebook in the General Chemistry lab. This semester due to COVID-19, students may use the Notability app on an iPad, a new lab notebook on sale at the bookstore or any notebook that has lines or grids. ALL entries must be recorded in **Blue or Black PEN** when using either a digital or physical notebook**.** The guidelines described in the 'Guide for Success in the General Chemistry Laboratory' section of your laboratory manual (beginning on page xiii) and Appendix A. No information can be recorded on scratch paper or in the lab manual during an in-person laboratory session. Note that, for all in-person experiments, your notebook must be prepared before the beginning of lab. Your TA will not allow you to begin a lab until your notebook prep is completed. This may mean you can't finish the experiment and no additional time will be given. Digital copies of your lab notebook (a PDF exported from Notability, or scans/photos of physical notebooks) will be submitted to Carmen as a single file before leaving lab unless you're forced to leave because you've reached the end of the lab period. In that case, you have 1 hour after the end of lab to submit the notebook pages. The only accepted file type for submitting digital copies of notebook pages is a PDF. Failure to submit digital copies on time will result in the loss of all ten (10) notebook points for the experiment in question. Digital files must be uploaded for your TA to grade your Report submission. This takes the place of carbon copies. File names must be in the following format: **lastname.#_firstname_semester_experimentcode_notebook.pdf** (for example: Smith.4321_John_Sp22_SCM_notebook.pdf). If you fail to correctly name your file, you will lose points and the points deducted will escalate each time this is done. If you fail to upload your notebook in time you must contact Dr. Zellmer for review. See the info starting on page xiii and Appendix A of the lab manual and the examples and links on pages 18-19 of this syllabus for further information about the notebook.

LABORATORY REPORTS: A **digital lab report** will be due 1 week after the completion of the laboratory experiments. You will prepare your report, including all the requirements outlined in the grading rubric, which can be found on Carmen under each assignment. *ALL REPORT REQUIREMENTS MUST BE INCORPORATED IN A SINGLE DOCUMENT, including graphs, charts, etc.* Reports then must be saved as a Microsoft Word document (.docx) or PDF (.pdf) file format. File names must be in the following format: **lastname.#_firstname_semester_experimentcode.docx** (for example: Smith.4321_John_Sp22_SCM.docx). If you fail to correctly name your file, you will lose points and the points deducted will escalate each time this is done.

Digital lab reports will be submitted through each Assignment on Carmen. You are responsible for making sure your submission is the correct file and is not corrupt. If any mistake is made with your report upload, the standard late penalty will apply if the submission deadline has passed. At any time before a grade has been issued, you can submit the report again, but only the most recent file will be graded and will accrue late penalties if the submission deadline has passed. *Reports will be accepted through Carmen ONLY – paper reports or emailed reports will not be accepted.*

Reports (and any required post-labs) are due by the **beginning** of the lab session **ONE** week **after** the **completion** of the experiment, by the normal start time of your lab period, unless otherwise noted on page 16 and in Carmen. After this time, Carmen will still accept submissions for one week, but the report will be considered late, even if turned in later the same day and will incur 10% deduction per day (24 hours). Deductions will be determined based on your submission time stamp. If you submit a report late, you **must notify** your TA via email within 24 hours after submission. **NO credit will be given after 7 days (including weekends and holidays) or past the due dates shown below (which may give less than one week to submit the report)**. Lab reports should be graded by your lab instructor and the score posted within **one week** after submission (let me know if it's been more than one week). Details for the lab report expectations are included in the preface starting on page xiii and Appendix B of the lab manual and on page 18 of this syllabus. The lab score will comprise **20%** of your total course score. *Photocopies of reports or lab manual are **not permitted** - it is **illegal** to photocopy the lab manual.*

Lab Reports for Expts. 1-7 will not be accepted later than 5:00 PM, Fri., Mar. 4.
No Lab Reports will be accepted after 5:00 PM, Fri., Apr. 22.

Laboratory Safety Requirements: Students are required to read, understand, and implement the safety precautions indicated in the laboratory manual and laboratory handouts. The precautions are summarized on a safety form which must be signed by all students during their first laboratory period. The following are selected instructions from the safety form:

1. You must wear Department-authorized ANSI code goggles in the laboratory. Goggles will be issued during check-in. After the first free pair, goggles must be purchased from CE 180. Not wearing goggles will result in the loss of 10% of the grade for the experiment. For any subsequent violation, an additional loss of 10% of the grade will result. Continued violations may result in dismissal from the course. The wearing of contact lenses is NOT recommended.
2. Each student must wear adequate clothing to reduce the possibility of injury from chemicals or broken glass (long pants, jeans are best, and shoes which cover your entire foot). **Students wearing inappropriate attire – including but not limited to *shorts*, *sandals, spandex or other skin-tight pants, pants with holes, tank tops or short skirts* - will be sent home.** Students are expected to change and return to complete the experiment in proper attire. **NO** make-up time will be provided. See the lab safety module in Carmen for more details. **Lab coats are required and can be purchased at 180 Celeste before the first lab.** Even with the lab coat proper attire underneath is required.
3. Familiarize yourself with the location of the fire blanket, fire extinguisher, and eye wash in the laboratory.
4. Promptly report all accidents, no matter how small, to your lab instructor.
5. Your work area and common glassware should be cleaned before you leave lab. After cleaning all glassware and putting your equipment away, wipe down your work area with a wet sponge or towel. This ensures that you, and other students who use the space, will not be harmed by chemicals left on the workspace. Also, clean up spills in the balance room by brushing chemicals into a weighing dish. Not cleaning up may result in the loss of points for the experiment.
6. No unauthorized experiments are allowed. No chemicals may be removed from the lab.

Lab Safety Statement: Students are required to read, understand, and implement the safety precautions indicated in the laboratory manual and laboratory handouts. The precautions are summarized on a safety form which must be digitally signed on Carmen by all students before or during their first laboratory period. Until this statement is signed, students are not permitted to participate in laboratory activities.

PREVENTING THE SPREAD OF COVID-19

To comply with university policy, we will be enforcing social distancing in the hallways and in the laboratory. While waiting for your lab session, try to stay at a reasonable social distance from others. You will be assigned a specific lab station number during the first lab session.

Within the lab, you will work at a lab station that is six (6) feet away from another student's lab station. Students will be required to sanitize all equipment and glassware used before leaving using the supplied 70% ethanol. Failure to clean your equipment and glassware for that lab period will result in loss of performance points for the experiment for the day.

According to University and Chemistry and Biochemistry Department policy, a face covering will be required while in Celeste Lab and in the General Chemistry laboratory. Students will be provided with a disposable face mask as they enter the laboratory after sanitizing their hands. Students will place their own face covering in their bag during the duration of the laboratory. We recommend placing your own face mask in a plastic bag or similar container. If anyone is not able to wear the provided face mask, we ask that you bring a second reusable face covering of your choice to wear after the lab is completed. Please wash the reusable cloth face covering that you wore in lab before wearing again. Please note in the unlikely event your reusable face covering is contaminated by a spill or splash, it will need to be disposed of as hazardous waste.

Laboratory Instruction: At the start of the laboratory, videos are shown or alternatively the TA will make a short presentation. Students must view the entire video or presentation prior to starting the experiment. Students who are late for laboratory will need to speak to the TA before beginning the experiment.

The videos are designed to supplement the instructions in the laboratory manual. Students will be better prepared to assimilate the video instructions if they have read the laboratory manual prior to the laboratory.

The videos are short and there is insufficient time to take detailed notes if you are not already familiar with the experiment. You are encouraged to view the videos at your own pace either before or after laboratory (go to https://uglabs.cbc.osu.edu/gc-lab-videos/). It's useful to do this before writing your procedure in the lab notebook. However, you are still required to view the videos at the normal laboratory time.

If you have a question about a policy, procedure, or need clarification, please email chem1250labsupervisor@osu.edu. You will not receive a response if sent to an incorrect email address or via the Carmen Inbox system. You can send e-mail directly to me as well. You must use your OSU email account when emailing the department. Please include the following information in your email to help the Lab Supervisors get back to you faster:

- Your TA's name
- The day and time of your lab

Missing Lab: Contact your TA and the Lab Supervisors right away. We require documentation (a written excuse) as to why you missed lab. Without this we don't need to make arrangements with you to make up the experiment, which could result in a zero for the experiment.

Reviews:

In the schedule below you'll see 3 Review periods. These are held in the normal lab room. Goggles and lab coats must be worn. Attendance is required as part of the lab grade. You must be present for the entire review period (about 2 hours) to receive 30 points credit toward your lab score or your score will be prorated. The review will start at the normal lab start time.

1250 Laboratory Activity Schedule*

Dates	Thursday	Friday	Assignments Due for the Week
Jan 10 – 14	Chk/ZER	Chk/ZER	Academic Misconduct Quiz Safety & Lab Policies Quiz Lab Safety Statement
Jan 17 – 21	1 (SCM)	1 (SCM)	Lab ZER Notebook Exercise & Quiz SCM Pre-lab
Jan 24 – 28	5 (EQW)	5 (EQW)	SCM Report and Data Entry EQW Pre-lab
Jan 31 – Feb 4	Review	Review	None
Feb 7 – 11 **midterm 1**	6 (CAL)	6 (CAL)	CAL Pre-lab EQW Report and Data Entry
Feb 14 – 18	7 (EMS)	7 (EMS)	EMS Pre-lab CAL Report and Data Entry
Feb 21 – 25	12 (IGL)	12 (IGL)	IGL pre-lab EMS Report
Feb 28 – Mar 4	Review	Review	IGL Report
Mar 7 – 11 midterm 2	14 (dHv)	14 (dHv)	dHv Pre-lab
Mar 14 – 18	**SPRING BREAK – No Classes**		
Mar 21 – 25	16 (dTf)	16 (dTf)	dTf Pre-lab dHv Report and Data Entry
Mar 28 – Apr 1	17 (BAR)	17 (BAR)	BAR Pre-lab dTf Report and Data Entry
Apr 4 – 8	19 (EQL)	19 (EQL)	EQL Pre-lab BAR Report and Post-lab
Apr 11 – 15 **midterm 3**	23 (ELC)	23 (ELC)	ELC pre-lab EQL Report and Post-lab
Apr 18 – 22	Review	Review	ELC Report and Post-lab
Apr 25 – 29	Final Exams – NO labs		

Chemistry 1250 Pre and Post-lab Assignments

These pre-lab and post-lab assignments are part of your lab grade. The pre-labs are due before you start the experiment or the week before the first groups meets for in-person labs. The post-lab marked "Carmen" below is taken on Carmen and is due one week from the time you finish your experiment (before you come to your next lab, unless otherwise noted in the table above). You should prepare for each lab by reading the experiment, preparing your notebook and working the pre-lab problems. **Pre-labs submitted after the after the lab is started will receive zero credit. You will use the links listed below for some prelabs and online data input (exps 1, 5, 6, 14 & 16):**

Expt #	*Title*	*Pre-lab*	*Post-lab*	*Points**
CKIN & ZER	Check in, lab Zero (safety, intro to lab, notebook, report), Check-in and Safety Quiz (Gatekeeper quiz)	---	Notebook Exercise** Online++	25
1	Scientific Measurements (SCM)	Online++	Online++ & Report	110
5	Determination of the Molar Mass of an Unknown Acid (EQW)	Online++	Online++ & Report	110
6	Calorimetry and Hess's Law (CAL)	Online++	Online++ & Report	110
7	Emission of Light & Atomic Models (EMS)	Online++	Report	110
12	The Ideal Gas Law: Molecular Weight (IGL)	Online++	Report	110
14	Vapor Pressure and Heat of Vaporization (dHv)	Online++	Online++ & Report	110
16	Freezing Point Depression (dTf)	Online++	Online++ & Report	110
17	Determining the Kinetics for the Bleaching of Allura Red Dye (BAR)	Online++	Carmen & Report	110
19	Equilibria and Le Chatelier's Principle (EQL)	Online++	Carmen & Report	110
23	Voltaic and Electrolytic Cells (ELC)	Online++	Carmen & Report	110

* The laboratory points 1215 (11 labs and review attendance) are factored to comprise 20% of the course score.

** https://uglabs.cbc.osu.edu/1250/pre-postlabs.php - Post-lab Notebook Exercise for Exp Zero can be found here

++ https://uglabs.cbc.osu.edu/1250/pre-postlabs.php --- **then select Prelab or Data Entry (post-lab)**

LABORATORY GRADES: Each lab is worth 110 points, except as noted in the table above. The points are from the online pre-labs and post-lab exercises, the notebook grade (10 points) and the report grade, including unknown grades. A detailed point breakdown may be found on the grading rubric, which can be found on Carmen.

Pre-lab assignments: Must be completed **prior** to the lab. The assignments are shown in the table above. There are pre-labs for each exp except exp Zero. They can be reached via Carmen or directly at the link above. The point values for the pre-labs vary for each experiment (see rubrics for details). The on-line pre-labs for exps 5, 14 & 16 also include data-entry similar to the post-labs for these experiments. The scores for these will be included in the lab report score. **No credit given if not completed prior to lab.**

Post-lab assignments: Will be completed after the scheduled lab time. These, like lab reports, are due **1 week** after completing the experiment (unless otherwise noted in the lab schedule table on page 16, due dates can also be found on Carmen). Where it lists "Carmen" above this means there is a quiz on Carmen (in the lab module, as well as under assignments). The point values for the Carmen post-labs vary for each experiment (see rubrics for details). Post-lab Carmen quizzes will receive zero credit if done more than 7 days after completion of the lab (i.e. the beginning of the lab period when the report is due). For the on-line data entry for experiments 1, 5, 6, 14 and 16, partial credit MAY apply.

Note: The Pre- and Post- lab quizzes and on-line pre-lab and data entry are time-sensitive and must be completed before the due dates and times, **no exceptions**. Even if you fail to complete or finish a lab you will still have the information to complete the Carmen post-lab assignments.

Any requests for re-grading must be made within 1 week of the receipt of a graded lab report, quiz or exam.

Notebooks - "Student Lab Notebook - OSU Chemistry Dept." (Hayden-McNeil Publishing). Must be written in **ink**.

Before lab:	Experiment number, title and date exp performed
	Purpose (one or two sentences)
	Procedure (reference to pages in lab manual and brief outline in your **OWN** words)
During lab:	All numerical data (must include label and units) --- *Recorded in Notebook only, nowhere else*
	Other observations --- *Recorded in Notebook only, nowhere else*
At home:	Calculations (*using your own data*)
	Chemical equations
	Results

Notebooks are graded each week as the experiment is being performed. **ALL** data and observations made during lab **MUST** be written **directly in the notebook** and **nowhere else**, unless otherwise directed by your TA. Calculations, chemical equations, and results will usually not be complete when the notebook is graded. Your **TA** will **check** your work, write down your grade, and tell you how your notebook could be improved. A PDF file of your notebook will be uploaded to Carmen before leaving lab unless you're forced to leave because you've reached the end of the lab period. In that case, you have 1 hour after the end of lab to submit the notebook pages. If you had not completed the notebook upload your TA will require you to e-mail copies of your data before leaving lab and then upload them w/in the grace period. The only accepted file type for submitting digital copies of notebook pages is a PDF. Failure to submit digital copies on time will result in the loss of all ten (10) notebook points for the experiment in question. Digital files must be uploaded or your report will **NOT** be graded. For further information on lab notebooks and examples for writing the procedures, see the lab manual and the following:

https://uglabs.cbc.osu.edu/1250 - General Chemistry web site (access lab materials from here)

https://www.asc.ohio-state.edu/zellmer.1/chem1250/lab/notebook_proc_1250.pdf - My suggestions for Notebook Procedure

Reports

Cover page: experiment number & title, course number, student's name, TA name,
date exp finished and **date report submitted**
Purpose; Procedure reference is sufficient (note any changes)
Report sheet reproduced using Word or Excel [**online data entry for Expts 1, 5, 6, 14, 16**]
Sample calculations (*using your own data*) – can write these and take a picture/scan and include this
Graphs if applicable
Report Questions
Results and Discussion
Conclusion

Reports are due by the **beginning** of lab one week after the work is completed, unless otherwise noted in the table on page 12 and shown in Carmen. Reports are submitted on-line in Carmen. A penalty of **10%** per **day** is assessed for late reports. After **7 days (including weekends and holidays) NO** credit will be given. Graded reports should be returned a week after submission - notify your lecturer and the lab supervisor if they are not. There is a cut-off date for the first five reports and a final cut-off date for the remaining reports. For further information on lab reports and examples, see:

https://uglabs.cbc.osu.edu/1250 - General Chemistry web site (access lab materials from here)

https://www.asc.ohio-state.edu/zellmer.1/chem1250/lab/chem1250_sample_lab_report.pdf - My outline for a report.

Writing Your Notebook Procedure

When writing the procedure in your notebook you should put it in your own words, as much as possible, in an outline form (using reasonably understandable abbreviations when possible). You should be able to follow your own procedure without looking at the lab manual (we can tell you to put the manual away and work just from your notebook). Also, someone with a basic understanding of chemistry should be able to do the experiment by following your procedure. Here are two partial examples:

A partial example of a procedure (based on exp 6):

Part A:

1a. Obtain 2 Cu cylinders & Styrofoam cup (w. lid) from TA.
1b. Check out flip thermometer from storeroom window (student ID req.)
1c. Open thermometer and check if working properly (~ 20 °C).

2a. Weigh clean, dry Styrofoam cup nearest 0.0001 g.
2b. Add 60 mL of distilled water to cup.
2c. Reweigh cup and water to nearest 0.0001 g.
2d. Place cup in 400-mL beaker (for stability).
2e. Weigh the two Cu cyl to nearest 0.0001 g.

3a. Hot water bath: 600-mL beaker, ring stand, Bunsen burner.
3b. Carefully place both Cu cyl. in 25-mL test tube
3c. Place test tube in hot water bath.
3d. Let bath come to boil while proceeding to next step.

A partial example of a procedure (based on exp 14):

Part A:

1a. Clean, dry 30-mL syringe (obtained from TA).
1b. Remove glass plunger, rinse with 5 mL acetone.
1c. Lubricate plunger with graphite using pencil, rubbing entire surface.
1d. Temporarily place plunger in 400-mL beaker.
1e. Rinse barrel using 5 mL acetone. Repeat.
1f. Dry barrel by drawing air through it w. aspirator.

2a. Attach serum stopper to syringe (Fig. 14.5, p 92).
2b. Fold back serum stopper before pushing onto Luer-Lok fitting.
2c. Push small end onto Luer-Lok fitting on syringe.
2d. Do not pull on too tightly – don't cover slits in fitting.

Note this looks like a "cookbook", using short concise individual steps. This is much easier to read and follow in lab when you're busy, rather than the paragraph form in the lab manual. Plus, doing this helps you to learn the procedure a better than just copying it word-for-word from the manual. While in lab you can check off each step as you do them to make sure you don't skip a step or do a step twice. Often, you may have trouble fully understanding what you're supposed to do based only on the written procedure. Watching the lab video for an experiment before or while writing the procedure will often help in understanding the procedure.

After preparing your notebook, do the pre-lab (which may include on-line data-entry, depending on the experiment). You should be able to answer the pre-lab questions if you've understood the Discussion, Procedure and Data Analysis sections. The on-line pre-labs with data entry (exps. 1, 5, 6, 14, 16) will have questions pertaining to the experiment and data-entry which will pretty much follow the report sheets you will use for your data collected in lab for the report (as will the on-line data entry for your results from lab). The on-line pre-lab data entry programs use randomly generated data similar to what you will collect in lab. These will be easier to do if you've read the manual and written the procedure first.