

General Chemistry CHEM 111 Fall 2024

Professor: Suzanne Moore Nguyen **Office:** 439 Jepson

Contact: snguyen3@umw.edu, 540-654-2040 If you have an emergency, you can text me at 804.822.1458

1. Where should I go?

Lecture (combined): **MWF**, *Jepson 100*, 12:00-12:50 pm

Lab:

- Section 4: **W**, *Jepson 214*, 1:00-3:50 pm
- Section 7: **F**, *Jepson 214*, 1:00-3:50 pm

Office Hours: Jepson 439

- Tuesday: noon - 1p.m.
- Wednesday: 5 – 6 p.m. *on zoom
- Thursday: noon - 1p.m.

Final Exam: Jepson 100

- **Wednesday, December 11: 12 – 2:30 p.m.**
- According to University policy, any student who does not take the final exam will fail the course. According to ACS policy, there is a 2-hour time limit for the exam, only nonprogrammable calculators are to be used, and nothing is to be written in the exam booklet (only on the scantron and scratch paper).

2. What do I need?

Positive learning mindset (free) 😊

Required Materials:

- Openstax Chemistry (2nd ed., Flowers) (online/open source - free)
- subscription to Aktiv (\$)
- lab coursepack (from Bookstore - \$)
- lab notebook with carbonless duplicate pages (\$)
- laboratory goggles and lab coat (\$)
 - goggles should be chemical splash safe (full eye protection/no safety glasses)
 - you will need closed toed shoes and long pants for entry into the lab
- calculator with scientific notation and exponential functions (\$)
 - you will only be able to use nongraphing calculators on all quizzes and exams
 - TI-30X calculators are available in the Bookstore.

3. Where can I find course materials?

Online: This course will make use of the Canvas course management system.

Please check here frequently as materials posted will include course announcements, assignments, lecture videos, and other course materials as necessary. Adjust your notification settings to be sure that you remain up-to-date on the course.

Please^{googleplex} have your notification setting for new Announcements posted to Immediately. I use this to communicate changes, additional materials, extra credit opportunities, and other important information. If this setting is not on, you are going to miss out 😞

4. What am I supposed to be learning?

General Education Learning Objectives: This course satisfies the Natural Science General Education requirement. After completing the course, a student should

- Demonstrate understanding of scientific methods that advance scientific knowledge
- Be able to develop explanatory hypotheses for observations, report and display scientific data, and interpret data in a scientifically sound manner
- Use theories and models as unifying principles to understand natural phenomena
- Demonstrate understanding of how scientific methods and resultant knowledge are applied to address specific technological and/or societal challenges

Course-Specific Learning Objectives: Chemistry is everywhere, whether you realize it or not; it can be exciting, useful, or dangerous. After completing the General Chemistry I course, a student should

- Understand the basis for chemical bonding and reactivity
- Be able to solve problems related to chemical principles
- Understand the models used by scientists to explain observed phenomena
- Have gained hands-on experience in the lab and learned how to conduct scientific experiments

I genuinely believe that you can succeed in this course, and I want to enable you to achieve your goals this semester. My goal is to create a learning environment that is inclusive, equitable, and welcoming. If there are aspects of the instruction or design of this course that result in barriers to your participation or academic success, please let me know as soon as possible.

TL,DR: I am here to help, but I can't solve a problem I don't know about. Let's figure it out together.

Disability Resources:

The Office of Disability Resources has been designated by the university as the primary office to guide, counsel, and assist students with disabilities. If you receive services through the Office of Disability Resources and require accommodations for this class, please provide me a copy of your accommodation letter via email or during a meeting. I encourage you to follow-up with me about your accommodations and needs within this class. I will hold any information you share with me in the strictest confidence unless you give me permission to do otherwise.

If you have not made contact with the Office of Disability Resources and have reasonable accommodation needs, their office is located in Seacobeck 005, phone number is (540) 654-1266 and email is odr@umw.edu. The office will require appropriate documentation of disability.

If you have allergies to any chemicals or other emergency medical information, please notify me as soon as possible.

5. How am I supposed to be learning?

In-Class Behavior: Please act respectfully in class of other students and myself. This includes turning devices to silent during class time, using electronic devices only for note taking purposes or for teamwork, and arriving to class on time. You are expected to come to class prepared by actively watching all assigned videos. You are expected to participate in all activities.

I reserve the right to dismiss you from class or lab if I feel you are acting in an unsafe manner, being disrespectful, or are disrupting the learning environment for your peers.

How to Succeed in Chem 111: DO PROBLEMS EVERY DAY!!!

- No, seriously, do problems every day! Extra credit problems will occasionally appear on Canvas
- Spend at least one hour per day working on chemistry this class is cumulative
- Actively view all lectures videos, take careful notes, work through the example problems on your own
- Attend all labs and complete the required lab assignments
- Get help from me! (office hours, before/after class, email)
- Seek tutoring through Academic Services or the American Chemical Society tutors
- Review the appropriate sections of the text before class
- Review the appropriate sections of the text after class and organize your notes – Do the practice problems alone and in groups

6. What are the rules?

AI statement: AI is permitted in a limited capacity in this course. Students should refer to individual assignments for authorization details as well as how/when appropriate citation for the tool should be used.

Please note:

- AI can be used to clarify concepts and provide examples but is not a replacement for your understanding.
- AI answers are not always correct.
- AI can help you learn, but your own effort is key.
- AI generated answers may not be submitted as your own work.

Academic Dishonesty:

In accordance with the University's Honor Code, all work submitted for grading must be your own and be pledged as such by signing the complete honor pledge at the top of the assignment. I value the community of trust that adherence to the Honor Code affords, and I expect that you will uphold the Honor Code in this course. Therefore, academic dishonesty in any shape or form will not be tolerated.

- Suspected violations of the Honor Code ***including the use of websites/services such as reddit, CourseHero, Chegg, etc., in the completion of any assignments submitted for a grade*** will be addressed according to the policy established by the Honor Council. Academic dishonesty can result in loss of credit for an assignment, a failing grade in the course, suspension or expulsion from the university, and a notation of an Honor Code violation on your transcript.
- Please familiarize yourself with the University's policies on academic dishonesty and ask if you need clarification on the expectations for an assignment: ignorance is not an excuse!

The Honor Code is important.

Do not submit work that is not your own.

If you have questions, ask.

If you have misjudged the assignment/mismanaged your time, **choose** to send me an email versus cheating. Please.

Policy on Recording Class and Distribution of Course Materials:

In this class, students **may not** make audio or video recordings of any course activity unless the student has an approved accommodation from the Office of Disability Resources permitting the recording class meetings. In such cases, the accommodation letter must be presented to the instructor in advance of any recording being done and all students in the course will be notified whenever recording will be taking place. Students who are permitted to record classes are not permitted to redistribute audio or video recordings of statements or comments from the course to individuals who are not students in the course without the express permission of the faculty member and of any students who are recorded. Distribution without permission is a violation of educational privacy law. This policy is consistent with UMW's [Policy on Recording Class and Distribution of Course Materials](#).

Title IX Statement

University of Mary Washington faculty are committed to supporting students and upholding the University's Policy on Sexual and Gender Based Harassment and Other Forms of Interpersonal Violence. Under Title IX and this Policy, discrimination based upon sex or gender is prohibited. If you experience an incident of sex or gender-based discrimination, we encourage you to report it. While you may talk to me, understand that as a "Responsible Employee" of the University, I **MUST** report to UMW's [Title IX Coordinator](#) what you share. If you wish to speak to someone confidentially, please contact the confidential resources found below. They can connect you with support services and help you explore your options. You may also seek assistance from UMW's Title IX Coordinator, their contact information can be found below.

Please visit <http://diversity.umw.edu/title-ix/> to view UMW's Policy on Sexual and Gender Based Harassment and Other Forms of Interpersonal Violence and to find further information on support and resources.

Title IX Coordinator: Ruth Davison, Ph.D.

Lee Hall, Room 401
1301 College Avenue
Fredericksburg, VA 22401
Phone: 540-654-5656
E-mail: rdavison@umw.edu
Website: <http://diversity.umw.edu/title-ix/>

Confidential Resources

On-Campus

- Talley Center for Counseling Services: Lee Hall, Room 106, 540-654-1053
- Student Health Center: Lee Hall, Room 112, 540-654-1040

Off-Campus

- Empowerhouse 24-hr hotline: 540-373-9373
- Rappahannock Council Against Sexual Assault (RCASA) 24-hr hotline: 540-371-1666

7. How do I demonstrate my learning?

Grading

	Points	Total
<i>Aktiv Problem Sets (best 12 out of 14)</i>	5	60
<i>Team Assignments (best 20 out of 26)</i>	1.5	30
<i>Quizzes (best 8 of 10)</i>	20	160
<i>In-Class Exams (4)</i>	75	300
<i>Laboratory</i>	250	250
<i>Final Exam</i>	200	200
<i>Course Points</i>		1000

Calculate your grade: After adding up your accumulated points and dividing by the total possible 90% = A, 80% = B, 70% = C, 60% = D, and below 60% = F.

A course grade of C- or better in CHEM 111 is required to enroll in CHEM 112

Mid-Semester Deficiency Reporting "U" criteria:

- Students with less than a C (less than 70% of possible points)
- Students who have 3 or more unscheduled absences
- Students who have not responded to instructor emails within 2 weeks

Description of Learning Activities:

Aktiv: Aktiv is an online learning system that provides an efficient, effective, and engaging learning experience. Each week, you will be responsible for completing a problem set containing problems on concepts that have been covered in lecture. The number of problems may vary from week to week depending on the topics covered. The lowest two problem sets will be dropped. You are allowed to work on these problems with other students, but you may not copy or plagiarize. Remember that you must work alone on quizzes and exams, so it is in your best interest to be sure you understand the material.

Team Assignments: During class time when there is not a quiz or exam scheduled, you will complete assignments as a team. Each team will submit one copy of their completed work at the end of class. The lowest six assignment grades will be dropped. If you are unable to attend a class for any reason, that will be counted as one of your dropped grades. Although the assignments will be posted after class (and you

are encouraged to complete them on your own!), team assignments cannot be made up or completed independently for a grade. Teams will be assigned by the instructor and will change periodically during the semester. Scientific research has shown that working together in teams improves the learning of all participants by at least 10%. When you are working in a team, please be respectful of your teammates and ensure that everyone on the team understands and agrees to the work on the assignment that is submitted.

Quizzes: A total of ten quizzes will be given throughout the term. Quiz questions will be similar to problems on the team activities or come from the assigned reading or lecture material. The lowest two quiz grades will be dropped. There will be no make-up quizzes without prior arrangements with me.

Exams: There will be four exams during the semester which will emphasize material introduced since the last exam. You must complete the exam during the designated class period, so be sure to make note of these dates from the course schedule. There will be no make-up exams without prior arrangements with me. The final exam will be a comprehensive, standardized final written by the American Chemical Society (ACS) that must be taken at the time scheduled by the University:

Both sections: December 11th , 12:00-2:30 pm

According to University policy, any student who does not take the final exam will fail the course. According to ACS policy, there is a 2-hour time limit for the exam, only nonprogrammable calculators are to be used, and nothing is to be written in the exam booklet (only on the scantron and scratch paper).

Quiz and Exam Policies:

- No cell phones or other personal electronic communication devices may be used in the completion of quizzes or exams.
- All quizzes and exams are closed note, closed book, and closed internet; personal communication of any type to anyone either in the course or not is not permitted.
- You may only use approved non-graphing calculators for ALL quizzes and examinations.
- If you feel a mistake has been made in the grading of your exam, you must submit what you wish to be re-graded and why (your reasoning is critical). This must be turned in to me no later than one week after the graded exam is returned.
- If you feel there has been a numerical error in calculating your quiz or exam score, please bring this to my attention no later than one week after the graded assignment is returned.

Laboratory: Detailed information regarding the laboratory component of this course can be found in the lab coursepack.

It is important to note that due to the hands-on nature of the laboratory, **if a student misses three (3) lab periods, they will fail the course.**

A laboratory practical will be given as the last lab; any student who does not take the laboratory practical will fail the course. Group work in the laboratory may require a team effort to gather data, but all calculations, data analysis, and post-lab questions must be completed independently. You are responsible for your own lab reports. Be sure you can personally justify anything you turn in. All sources used in the completion of lab reports must be appropriately cited (examples provided in lab coursepack).

Reading: Reading of the appropriate sections of the textbook should be done before coming to class. You will be responsible for this material, even if it is not covered in lecture.

Attendance: Attendance in lab is mandatory. Attendance in lecture is highly recommended. Regardless of attendance, all assignments are due on the scheduled date.

No late assignments will be accepted without my prior consent.

Absences: You should notify me of an expected absence as early as possible. Make-up exams will not be given except in the event of EXTREMELY extenuating circumstances. If you must miss a quiz, see me as soon as possible prior to the quiz to arrange a time for a make-up quiz. If you must miss a lab, a make-up session may be possible; please see me as soon as possible prior to the lab you will need to miss in order to make these arrangements.

Team assignments cannot be made up.

Resources:

I want to support you in your overall wellness and in reaching your goals this semester. I know that students sometimes face challenges that can impact academic performance (examples include mental health concerns, food insecurity, homelessness, personal emergencies). Should you find that you are managing such a challenge and that it is interfering with your coursework, you are encouraged to contact me or the Dean of Students (mjones6@umw.edu) for support and referrals to campus and/or community resources.

Digital Knowledge Center

The Digital Knowledge Center (DKC), located in the Hurley Convergence Center room 408, empowers UMW students to be digital creators by providing the support, technology, and spaces to complete digital projects, including audio, video, graphic design, 3D modeling, and website projects. The DKC:

- helps students learn the tools of digital creation through [one-on-one appointments](#).
- provides the technology for digital creation through [media equipment loan at the HCC Info Desk](#), design software available in the DKC, and web-building platforms such as [Domain of One's Own](#).
- operates spaces for digital creation, including the HCC Video Production Studio, DKC Podcast Studio, HCC Vocal Booth, and DKC 3D Print Lab.

UMW students can find out more and book appointments with the DKC at dkc.umw.edu.

Printable Course Schedule: The weekly modules in Canvas will adhere to this schedule as closely as possible. The quiz and exam dates are set. The instructor reserves the right to adjust, with notice, this schedule to better convey course content and meet student needs.

Fall 2024 Tentative Course Schedule				
Date		Topic	Chapter	Something Due
Aug	26	Intro: Matter, Measurement, and Problem Solving	1	
	28	Matter, Measurement, and Problem Solving	1	
	30	Atoms, Molecules, and Ions	2	A1, Q1
Sept	2	<i>Labor Day – No class</i>	-	
	4	Atoms, Molecules, and Ions	2	
	6	Atoms, Molecules, and Ions	2	A2, Q2
	9	Composition of Substances, Stoichiometry of Chemical Reactions	3.1-2, 4.1-4	
	11	Composition of Substances, Stoichiometry of Chemical Reactions	3.1-2, 4.1-4	
	13	Composition of Substances, Stoichiometry of Chemical Reactions	3.1-2, 4.1-4	A3, Q3
	16	Composition of Substances, Stoichiometry of Chemical Reactions	3.1-2, 4.1-4	
	18	Composition of Substances, Stoichiometry of Chemical Reactions	3.1-2, 4.1-4	
	20	Exam 1	1, 2, 3.1-2, 4.1-4	A4, Exam 1
	23	Composition of Substances, Stoichiometry of Chemical Reactions	3.3-4, 4.5	
	25	Composition of Substances, Stoichiometry of Chemical Reactions	3.3-4, 4.5	
	27	Composition of Substances, Stoichiometry of Chemical Reactions	3.3-4, 4.5	A5, Q4
	30	Thermochemistry	5	
Oct	2	Thermochemistry	5	
	4	Thermochemistry	5	A6, Q5
	7	Thermochemistry	5	
	9	Thermochemistry	5	

	11	Exam 2	3.3-4, 4.5, 5	Exam 2
	14	<i>Fall Break – No Class</i>		
	16	Electronic Structure and Periodic Properties of Elements	6	
	18	Electronic Structure and Periodic Properties of Elements	6	A8, Q6
	21	Electronic Structure and Periodic Properties of Elements	6	
	23	Electronic Structure and Periodic Properties of Elements	6	
	25	Chemical Bonding and Molecular Geometry	7	A9, Q7
	28	Chemical Bonding and Molecular Geometry	7	
	30	Chemical Bonding and Molecular Geometry	7	
Nov	1	Chemical Bonding and Molecular Geometry	7	A10, Q8
	4	Advanced Theories of Covalent Bonding	8	
	6	Advanced Theories of Covalent Bonding	8	
	8	Advanced Theories of Covalent Bonding	8	A11, Q9
	11	Advanced Theories of Covalent Bonding	8	
	13	Gases	9	
	15	Exam 3	6, 7, 8	A12, Exam 3
	18	Gases	9	
	20	Gases	9	
	22	Liquids and Solids	10	A13, Q10
	25	Liquids and Solids	10	
	27-29	Thanksgiving Break – no class		
Dec	2	Liquids and Solids	10	
	4	Exam 4	9, 10	Exam 4
	6	Review	1-10	A14
Dec	11	Final Exam	1-10	12:00-2:30 p.m.

Week of	Lab	Assignments Due
8/26	Introduction, Lab Policies, and Safety	
9/2	Lab 1: Volumetric Measurements	Graphing Assignment Volumetric Measurement Pre-Lab Notebook
9/9	Lab 2: Skill Lab 1	Volumetric Measurements Report Skills Assignment
9/16	Lab 3: Solution Preparation	Solution Preparation Pre-Lab Notebook
9/23	Lab 4: Stoichiometry	Solution Prep Report Stoichiometry Pre-Lab Notebook
9/30	Lab 5: Skills Lab 2	Stoichiometry Report Skills Assignment
10/7	Lab 6: Thermochemistry	Thermochemistry Pre-Lab Notebook
10/14	Fall Break Week – NO LAB	Thermochemistry Report
10/21	Lab 7: Spectroscopy	Spectroscopy Pre-Lab Notebook
10/28	Lab 8: Skills Lab 3	Spectroscopy Report Skills Assignment
11/4	TBD	
11/11	Lab 9: Lewis Structures & Molecular Geometry	Lewis Structure & Molecular Geometry Assignment
11/18	Lab 10: H ₂ Gas Generation	H ₂ Gas Pre-Lab Notebook
11/25	Thanksgiving Break – NO LAB	
12/2	Lab Practical	H ₂ Gas Generation Report Lab Practical

Last day to drop: Friday, 10/13/2024

Last day to withdraw: Friday, 12/6/2024