

General Chemistry CHEM 111
Fall 2019

Professor: Nicole Crowder
Office: 439 Jepson
Contact: ncrowder@umw.edu, (540)-654-1411
Lecture: MWF 2:00-2:50 pm, Jepson 100
Lab: Thursdays, Jepson 214

Office Hrs: M 10:00-12:00; W 11:00-1:00; F 11:00-12:00

Required Materials: Principles of Chemistry: A Molecular Approach, 3rd ed., Tro
Subscription to ALEKS
Coursepack for Sections 1, 2, 3
Lab Notebook with carbonless duplicate pages
Laboratory goggles and lab coat
Calculator with scientific notation and exponential functions; you will only be able to use non-graphing calculators on all quizzes and exams. TI-30X calculators are available in the book store.

Web Site: This course will make use of the Canvas course management system. Please check here frequently as materials posted will include course announcements, assignments, and other course materials as necessary.

General Education and Course-Specific Learning Objectives:

This course in part satisfies the Natural Science General Education requirement. After completing the course sequence, a student should

- Be able to describe the scientific methods that lead to scientific knowledge
- Be able to report and display data collected, interpret experimental observations and construct explanatory scientific hypotheses
- Be able to use theories and models as unifying principles that help us understand the natural world
- Students will be able to identify how the natural sciences are used to address real-world problems

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

Grading:	Points	Total
ALEKS Pie Completion	45	45
ALEKS Objective Completion	45	45
Quizzes (best 8 of 10)	20	160
Laboratory	250	250
In-Class Exams (4)	75	300
Final Exam	200	<u>200</u>
		1000

Students with a C average or lower will receive a Mid-Semester Deficiency Report.

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

In-Class Behavior: Please act respectfully in class of other students and myself. This includes turning your cell phone, etc. off during class time, using electronic devices only for note taking purposes, and arriving to class on time. You are expected to participate in all activities and discussions. I reserve the right to dismiss you from class if I feel you are acting disrespectfully or are disrupting the class.

Quizzes: A total of ten 15-20 minute quizzes will be given throughout the term at the end of class. Quiz questions will be similar to problems in the text 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 in-class exams during the semester which will emphasize material introduced since the last exam. There will be no make-up exams without prior arrangements with me. The final exam will be a comprehensive, standardized final prepared by the American Chemical Society and must be taken at the time scheduled by the University: **December 11th, 3:30-6:00 pm**. According to University policy, any student who does not take the final exam will fail the course.

Exam Policies: No cell phones or other personal electronic communication devices will be permitted in the classroom during exams. 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 write out what you wish to be re-graded and why (your reasoning is critical) on a separate sheet of paper. This must be turned in to me with the exam no later than one week after the graded exam is returned. Please note that the *entire* exam will be re-graded, and the new score (higher or lower) will be recorded.

If you feel there has been a numerical error in calculating your exam score, please bring this to my attention no later than one week after the graded exam is returned.

Laboratory: Detailed information regarding the laboratory component of this course can be found in the lab portion of the 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 the last week of 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 and questions must be completed independently and pledged as such. You are responsible for your own lab reports. Be sure you can personally justify anything you turn in.

Attendance: Attendance in lab is mandatory. Attendance in lecture is highly recommended. Occasionally, material will be presented in lecture that is beyond the scope of your textbook or with a different emphasis than that of the text, and you will be responsible for learning this material even if you are absent.

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 is usually possible if you can attend one of the other lab sections in the same week as your missed lab.

ALEKS: ALEKS (Assessment and LEarning in Knowledge Spaces) is an online, mastery-based assessment and learning system that provides an efficient, effective, and engaging learning experience. ALEKS uses artificial intelligence to determine precisely what you know, don't know, and are most ready to learn. This begins with an Initial Knowledge Check, which is a 25-30 question adaptive assessment that determines which course topics you have already mastered and which you have not. This knowledge is depicted in a pie chart divided into different areas of the course which will be filled in as you master topics.

Each week, you will be responsible for completing an objective that contains topics that have been covered in lecture. Performance on these objectives will determine your score on Objective Completion (45 total points). By the end of the semester, the goal is to have the entire pie chart filled in with topics you have mastered; performance on this will determine your score on Pie Completion (45 points).

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.*

PASS Sessions: Peer-Assisted Study Sessions (PASS) are available for this course to assist you in better understanding of the course material. The PASS program provides peer-facilitated study sessions led by qualified and trained undergraduate leaders who attend the lectures with students and encourage students to practice and discuss course concepts in sessions. Sessions are open to all students and will focus on the most recent material covered in class. These sessions are not tutoring but rather sessions to compare class notes, review and discuss important concepts, develop appropriate strategies for studying, and prepare for exams. While attendance is free and voluntary, you may earn two extra credit points a week for attending a PASS session. You must be present for the entire PASS session to get credit for that session; students who are disruptive will not earn extra credit points.

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. Academic dishonesty in any shape or form will not be tolerated.

Suspected violations of the Honor Code will be addressed according to the policy established by the Honor Council. Please familiarize yourself with the University's policies on academic dishonesty: ignorance is not an excuse!

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. You will need to request appropriate accommodations through this office as soon as possible, and then make an appointment with me to discuss your approved accommodation needs. I will hold any information you share with me in the strictest confidence unless you give me permission otherwise.

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

How to Succeed in Chem 111:

- **DO PROBLEMS EVERY DAY!!!**
- No, seriously, do problems every day!
- Spend about one hour per day on chemistry (reading, reviewing notes, **doing problems**)
- Attend all lectures, sit near the front, and take careful notes
- Attend all labs and complete the required lab assignments
- Attend PASS sessions regularly
- 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
- Come to review sessions prepared with questions
- Seek the instructor's help when needed (office hours, before/after class, email)
- In the event that you require additional help beyond the instructor, you are highly advised to seek peer-tutoring through Academic Services or the ACS peer tutors

Course Schedule: The tentative schedule that follows is how I see the course arranged. It is not set in stone; if there is material that is confusing to the class, we will spend more time on it. The quiz and exam dates will remain as scheduled. If all of the “scheduled” material has not been presented prior to the quiz/exam, the quiz/exam will include only what has been covered.

<u>Date</u>	<u>Topic</u>	<u>Chapter</u>	<u>Assignment</u>
Aug. 26	Intro; Matter, Measurement, and Problem Solving	1	
Aug. 28	Matter, Measurement, and Problem Solving	1	
Aug. 30	Atoms and Elements	2	A1, Q1
Sept. 2	Labor Day – No class		A2
Sept. 4	Atoms and Elements	2	
Sept. 6	Molecules, Compounds, Chemical Equations	3	A3
Sept. 9	Molecules, Compounds, Chemical Equations	3	Q2
Sept. 11	Molecules, Compounds, Chemical Equations	3	
Sept. 13	Molecules, Compounds, Chemical Equations	3	A4
Sept. 16	Chemical Quantities and Aqueous Reactions	4	Q3
Sept. 18	Chemical Quantities and Aqueous Reactions	4	
Sept. 20	EXAM 1	1-4	A5, EXAM
Sept. 23	Chemical Quantities and Aqueous Reactions	4	
Sept. 25	Chemical Quantities and Aqueous Reactions	4	
Sept. 27	Chemical Quantities and Aqueous Reactions	4	A6
Sept. 30	Thermochemistry	6	Q4
Oct. 2	Thermochemistry	6	
Oct. 4	Thermochemistry	6	A7
Oct. 7	Thermochemistry	6	Q5
Oct. 9	The Quantum Mechanical Model of the Atom	7	
Oct. 11	EXAM 2	4 & 6	A8, EXAM
Oct. 14	Fall Break – No Class	-	
Oct. 16	The Quantum Mechanical Model of the Atom	7	
Oct. 18	The Quantum Mechanical Model of the Atom	7	A9
Oct. 21	Periodic Properties of the Elements	8	Q6
Oct. 23	Periodic Properties of the Elements	8	
Oct. 25	Chemical Bonding I: The Lewis Model	9	A10
Oct. 28	Chemical Bonding I: The Lewis Model	9	Q7
Oct. 30	Chemical Bonding I: The Lewis Model	9	
Nov. 1	Chemical Bonding I: The Lewis Model	9	A11
Nov. 4	Chemical Bonding II: Molecular Shapes, VBT, MO Theory	10	Q8
Nov. 6	Chemical Bonding II: Molecular Shapes, VBT, MO Theory	10	
Nov. 8	Chemical Bonding II: Molecular Shapes, VBT, MO Theory	10	A12
Nov. 11	Chemical Bonding II: Molecular Shapes, VBT, MO Theory	10	Q9
Nov. 13	Gases	5	
Nov. 15	EXAM 3	7-10	A13, EXAM
Nov. 18	Gases	5	
Nov. 20	Gases	5	
Nov. 22	Liquids, Solids, and Intermolecular Forces	11	A14
Nov. 25	Liquids, Solids, and Intermolecular Forces	11	Q10
Nov. 27	Thanksgiving Break – No class	-	
Nov. 29	Thanksgiving Break – No class	-	
Dec. 2	Liquids, Solids, and Intermolecular Forces	11	
Dec. 4	EXAM 4	5 & 11	A15, EXAM
Dec. 6	Review	1-11	Pie
Dec. 11	FINAL EXAM 3:30-6:00	1-11	FINAL EXAM

Chem 111 Lab Schedule

	Lab	Assignments Due
8/29	Safety, Lab Check-in	Math Review
9/5	Volumetric Measurements	Volumetric Measurements Pre-Lab Notebook
9/12	Empirical Formula Determination	Volumetric Measurements Report Emp. Formula Pre-Lab Notebook
9/19	Solution Preparation	Empirical Formula Report Solution Prep Pre-Lab Notebook
9/26	Stoichiometry	Solution Prep Report Stoichiometry Pre-Lab Notebook
10/3	Thermochemistry	Stoichiometry Report Thermo Pre-Lab Notebook
10/10	Solution Calorimetry	Thermo Report Calorimetry Pre-Lab Notebook
10/17	Project	Calorimetry Report Lab Notebook Pages
10/24	Spectroscopy	Project Report and Evaluations Spectroscopy Pre-Lab Notebook
10/31	Project	Spectroscopy Report Lab Notebook Pages
11/7	Modeling: Lewis Structures and Molecular Geometry	Project Report and Evaluations Modeling Lab Report
11/14	TBD	
11/22	H ₂ Gas Generation	H ₂ Gas Generation Pre-Lab Notebook
11/29	Thanksgiving Break	**H ₂ Gas Generation Report Due 12/2**
12/6	Laboratory Practical, Check-out	

Last day to drop a course: September 13

Last day to withdraw from a course or change to pass/fail grading: October 25

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 below confidential resources. They can connect you with support services and help you explore your options. You may also seek assistance from UMW's Title IX Coordinator. Please visit <http://diversity.umw.edu/title-ix/> to view UMW's policy and to find further information on support and resources.

Resources

Stephanie Lucas-Waverly
Title IX Coordinator
Office of Title IX
Fairfax House
540-654-5656
slucaswa@umw.edu

Crystal Rawls
Title IX Deputy for Students
UC 303
540-654-1801
crawls@umw.edu

Confidential Resources

On-Campus
Talley Center for Counselling Services
Lee Hall 106
540-654-1053

Student Health Center
Lee Hall 112
540-654-1040

Off-Campus
Empowerhouse
540-373-9373

RCASA
540-371-1666

Policy on Recording Class and Distribution of Course Materials

Classroom activities in this course may be recorded by students enrolled in the course for the personal, educational use of that student only, and may not be further copied, distributed, published, or otherwise used for any other purpose without the express written consent of the course instructor.

All students are advised that classroom activities may be taped by students for this purpose.

Distribution or sale of class recordings is prohibited without the written permission of the instructor and other students who are recorded.

Any class materials (any document or other item provided by or made available by the instructor to students enrolled, including but not limited to coursepacks, annotated lectures, handouts, laboratory experiments, quizzes, exams, review sheets or past exams) provided for this course (in the coursepack, during class or lab, or posted on Canvas) are for the personal, educational use of that student only, and may not be further copied, distributed, published, or otherwise used for any other purpose without the express written consent of the course instructor.

Distribution or sale of any and all class materials is prohibited without the written permission of the instructor.

Distribution without permission is a violation of copyright law. Students in violation of any part of this policy are subject to disciplinary action through the Office of Judicial Affairs and Community Standards.

This policy is consistent with UMW's Policy on Recording Class and Distribution of Course Materials.