

General Chemistry CHEM 111
Fall 2011

Professor: Mike Pearson
Office: 340 Jepson
Contact: mpearson@umw.edu, (540)-654-1405
Lecture: MWF 12:00-12:50 pm, Jepson 219
Lab: **Section 6** Monday 1:00 – 3:50, Jepson 214
Section 7 Tuesday 11:00 – 1:45, Jepson 214
Section 8 Wednesday 1:00 – 3:50, Jepson 214

Office Hours: T 3:00-4:00
R 12:00 – 2:00
F by appointment

Required Materials: Chemistry: The Molecular Nature of Matter and Change, UMW ed., Silberberg
Coursepack for Sections 6,7,8
Lab Notebook with carbonless duplicate pages
Laboratory goggles and lab coat
Calculator with scientific notation and exponential functions

Web Site: This course will use the Canvas course management system for course announcements, assignments, Lab quizzes 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
- Be able to identify current issues in which scientific progress may challenge traditional social ideas or present moral or ethical dilemmas

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:	Percent
Practice Problems	5
Quizzes	10
Laboratory	25
In-Class Exams (4)	35
Final Exam	25

Students with a C average or lower on **October 20th** will receive a Mid-Semester Deficiency Report (**U** = unsatisfactory)

In-Class: Please act professionally. In class be respectful of fellow students and myself. This includes:

Behavior: turning your cell phone, etc. off during class time, using laptops only for note taking purposes, and arriving to class on time. Absolutely no racial/sexual slurs or foul language will be tolerated.

Quizzes: Several quizzes will be given at the end of class. There will be no make-up quizzes.

Homework: Problems from the textbook will be assigned and posted on Canvas. These assignments **must** be completed using the CONNECT system (connect.mcgraw-hill.com). These problems are assigned weekly. The due dates will be posted. It is up to you to read the due dates posted. After the due date no homework will be accepted. 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. Working on problems other than those assigned is a good idea.

Exams: There will be four in-class exams during the semester. There will be no make-up exams without prior arrangements with me. The final exam will be comprehensive and must be taken at the time scheduled by the University: **Monday December 12th, Noon - 2:30 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. A calculator may be used, but no formulas or information may be stored in the memory.

Exams will be mostly open ended questions and a few multiple choice. Be sure to show your work on the open ended questions to receive up to 50% partial credit on the question. The exams are taken in 50 minutes sharp. If an exam is not handed in by 12:54 it will not be accepted. To successfully complete the exam on time can be accomplished by figuring out the major concepts in the section and practicing questions in advance. Cramming does not usually work in this class. Write your own questions on each concept and then be able to answer it in 3 – 5 minutes is my suggestion.

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 final will be given the last week of lab; any student who does not take the laboratory final will fail the course.

Group work in the laboratory may require a team effort to gather data, but all calculations should be completed independently. You are responsible for your own lab reports. Honor violations are not fun and inevitably ruin your semester. It's not worth it.

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.**

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 lab, a make-up session is sometimes possible if you can attend one of the other lab sections in the same week as your missed lab.

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*.

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 of 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.

University Chem 111 hard facts:

You are an intelligent adult and will be treated as one. Unlike high school, there is no extra credit, no extra time past the due dates, no grade inflation and no unprofessional behavior. To be in this class is a privilege. The goal is for you to do the work, learn and be prepared. The goal is not for the instructor to give you answers. The history of the grades is usually 5% A's, 15% B's, and 35% C's. Many students find it overwhelming, too fast paced and are unprepared for the mathematical rigor. If you are in this category, identify it early and make a professional decision. If you require additional help beyond the instructor, you are highly advised to seek peer-tutoring through Academic Services (<http://www.umw.edu/acsv/Services/index.htm>).

Here are some typical examples of what not to do:

- Show up late to class or especially lab
- Not bring a calculator to class
- Talk off subject and distract other students (result: asked to leave class)
- Not bring your lab book to lab, pre-lab write up to lab, or not complete your pre-lab quiz (all of these result in not being allowed to do the lab)
- Make a racial or sexual slur to anyone (result: expulsion from class)
- Cheat in any way (result: honor court)
- Doing an experiment in lab and then asking the instructor what color, how much, is it hot or anything where the point is for you to learn to make the observation (result: what color do you think it is?)
- Act negative when faced with adversity. Have a temper tantrum, sigh, or complain. Cry over a bad grade (in public anyway)
- Being resistive to learning (result: not learning)
- Sit in the back of class and communicate (text) on Facebook, smart phones or any electronic medium. Don't even bother coming.
- Not turning off your phone (result: annoyance from me and others)
- Trying to turn in an exam after 12:54 (result: exam absolutely not accepted)

Okay? Just be the professional that you are here to be. This class takes you out of your comfort zone, tastes like bitter medicine and can be very frustrating. Take this challenge on in a classy, graceful manner.

Course The tentative schedule that follows may change slightly. The lab schedule is less likely to change.

Schedule:

<u>Date</u>	<u>Topic</u>	<u>Chapter</u>	<u>Notes</u>
Aug. 29	Intro, Keys to the Study of Chemistry	1	
Aug. 31	Keys to the Study of Chemistry	1	
Sept. 2	Keys to the Study of Chemistry	1	
Sept. 5	The Components of Matter	2	
Sept. 7	The Components of Matter	2	
Sept. 9	The Components of Matter	2	
Sept. 12	Stoichiometry of Formulas and Equations	3	
Sept. 14	Stoichiometry of Formulas and Equations	3	
Sept. 16	Stoichiometry of Formulas and Equations	3	
Sept. 19	Stoichiometry of Formulas and Equations	3	
Sept. 21	3 Major Classes of Chemical Reactions	3/4	
Sept. 23	EXAM 1	1-3	
Sept. 26	3 Major Classes of Chemical Reactions	4	
Sept. 28	3 Major Classes of Chemical Reactions	4	
Sept. 30	3 Major Classes of Chemical Reactions	4	
Oct. 3	Thermochemistry	6	
Oct. 5	Thermochemistry	6	
Oct. 7	Thermochemistry	6	
Oct. 10	Thermochemistry	6	
Oct. 12	Quantum Theory and Atomic Structure	7	
Oct. 14	EXAM 2	4 & 6	
Oct. 17	Fall Break: No Class	-	
Oct. 19	Quantum Theory and Atomic Structure	7	
Oct. 21	Quantum Theory and Atomic Structure	7/8	
Oct. 24	Electron Configuration & Chemical Periodicity	8	
Oct. 26	Electron Configuration & Chemical Periodicity	8	
Oct. 28	Models of Chemical Bonding	9	
Oct. 31	Models of Chemical Bonding	9	
Nov. 2	Models of Chemical Bonding	9	
Nov. 4	The Shapes of Molecules	9/10	
Nov. 7	The Shapes of Molecules	10	
Nov. 9	The Shapes of Molecules	10/11	
Nov. 11	Theories of Covalent Bonding	11	
Nov. 14	Theories of Covalent Bonding	11	
Nov. 16	EXAM 3	7-11	
Nov. 18	Gases and the Kinetic-Molecular Theory	5	
Nov. 21	Gases and the Kinetic-Molecular Theory	5	
Nov. 23	Thanksgiving Break – No class	-	
Nov. 25	Thanksgiving Break – No class	-	
Nov. 28	Gases and the Kinetic-Molecular Theory	5	
Nov. 30	Intermolecular Forces: Liquids, Solids, & Phase Changes	12	
Dec. 2	Intermolecular Forces: Liquids, Solids, & Phase Changes	12	
Dec. 5	Intermolecular Forces: Liquids, Solids, & Phase Changes	12	
Dec. 7	EXAM 4	5 & 12	
	Review	1-12	
Dec. 12	FINAL EXAM 3:30-6:00	1-12	

Chem 111 Lab Schedule

9/5	Safety, Lab Check-in, Volumetric Measurements
9/12	Formula of a Hydrate
9/19	Mass Percent NaHCO_3 in Alka-Seltzer
9/26	Project 1
10/3	Project 1
10/10	Thermochemistry: Energy of Fuels
10/17	Spectroscopy
10/24	Project 2
10/31	Project 2
11/7	Modeling: Lewis Structures and Molecular Geometry
11/14	Reaction of Metal with Acid to Form H_2
11/17	Monday and Tuesday lab
11/21	Wednesday Lab
11/28	Intermolecular Forces and Surface Tension
12/5	Laboratory Final Check-out