General Chemistry CHEM 111 **Fall 2019**

Professor: Dr. Sarah Smith
Office: Jepson 440
Email: ssmith23@umw.edu
Phone: (540)-654-1409

Lecture: MWF 12:00 – 12:50 p.m.; Jepson 219
Lab: T 2:00 – 4:45 p.m; Jepson 214

Office Hours:

M 10:00 – 11:00 am
T 11:00 – 1:00 pm
W 2:00 – 3:00 pm
F 10:00-11:00 am
Or by appointment

Required Materials:

Principles of Chemistry: A Molecular Approach, 3rd ed., Tro
Subscription to ALEKS. Available through the Bookstore or directly from the website
Coursepack for Section 5
Lab Notebook with carbonless duplicate pages
Laboratory goggles and lab coat
Calculator with scientific notation and logarithmic/exponential functions; you must purchase a Casio FX260 solar or TI-30X IIS for **ALL** examinations or an equivalent approved by the instructor. Cellular phones are not permitted on exam days.

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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	40	40
ALEKS Objective Completion	50	50
Quizzes (best 8 of 10)	20	160
Laboratory	250	250
In-Class Exams (4)	75	300
Final Exam	200	200
		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.

Points accumulated	**Letter Grade**	**Points accumulated**	**Letter Grade**
≥ 930 points	A	769 – 730 points	C
929 – 900 points	A-	729 – 700 points	C-
899 – 870 points	B+	699 – 650 points	D+
869 – 830 points	B	649 – 600 points	D
829 – 800 points	B-	below 600 points	F
799 – 770 points	C+		

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 13th, 8:30-11:00 am**. 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 (including smart watches) 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 should be completed independently. 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 (50 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 (40 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 three extra credit points a week for attending a PASS session. This amounts to attending 10 out of the 14 weeks of the semester. You will not gain the points if you only go to the PASS sessions during the first three weeks of class or the last or only before exams. Your attendance must be more regular for you to benefit. In addition, for you to receive credit (the 3 points), you must be present for the entire PASS session. Students who are disruptive will lose credit for that session; continual disruptions will result in your removal from PASS for the rest of the semester and the denial of any extra credit points associated with your attendance.

Honor System: In accordance with the University's Honor Code, **All** graded work (hourly exams, online exercises, extra credit assignments, *graded* assignments, final exam) must be your own and pledged as such. (use **these** words)

I hereby declare upon my word of honor that I have neither given nor received any unauthorized help on this work. Signed

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 Services: 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.

Title IX: 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 on Sexual and Gender Based Harassment and Other Forms of Interpersonal Violence* and to find further information on support and resources.

Class Recordings: Video and/or audio recording of class lectures and review sessions without the advance consent of the instructor is prohibited. On request, the instructor may grant permission for students to record course lectures, on the condition that these recordings are only used as a study aid by the individual making the recording. Unless explicit permission is obtained from the instructor, recordings of lectures and review sessions may not be modified and must not be transferred or transmitted to any other person, whether or not that individual is enrolled in the course. Students with approved accommodations from the Office of Disability Resources permitting the recording class meetings must present the accommodation letter to the instructor in advance of any recording being done. On any days when classes will be recorded, the instructor will notify all students in advance. Distribution or sale of class recordings is prohibited without the written permission of the instructor and other students who are recorded. Distribution without permission is a violation of educational law. This policy is consistent with UMW's Policy on Recording Class and Distribution of Course Materials.

How to Succeed in Chem 111:

- **DO PROBLEMS EVERYDAY!!!**
- No, seriously, do problems everyday!
- 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
- Use your textbook wisely

Start by quickly skimming each chapter. Look at what seems familiar and unfamiliar, and use it to plan your reading

Go over each "Sample Problems" in the chapters carefully and then try the "Follow-Up Problems" that follow immediately after the samples

Note that there is a glossary of terms in the back of the book that you may find useful.

- 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
- asking questions
- Seek the instructor's help when needed (office hours, before/after class, email)

Course Schedule: The tentative schedule that follows is how I see the course arranged. It is not concrete. If there is material that you, as a class, find confusing, we will spend more time on that topic. The exam dates will remain set according to the schedule. If all of the "scheduled" material has not been presented prior to the exam, the exam will include only what has been covered.

8/26 Introduction	8/28 Chapter 1	8/30 Chapter 2 Quiz #1 ALEKS 11
9/2 Labor Day – no class ALEKS 2	9/4 Chapter 2	9/6 Chapter 3 ALEKS 3
9/9 Chapter 3 Quiz #2	9/11 Chapter 3	9/13 Chapter 3 ALEKS 4
9/16 Chapter 4 Quiz #3	9/18 Chapter 4	9/20 **Exam One** (chapters 1-4) ALEKS 5
9/23 Chapter 4	9/25 Chapter 4	9/27 Chapter 4 ALEKS 6
9/30 Chapter 6 Quiz #4	10/2 Chapter 6	10/4 Chapter 6 ALEKS 7
10/7 Chapter 6 Quiz #5	10/9 Chapter 6	10/11 **Exam Two** (chapters 4 and 6) ALEKS 8
10/14 FALL BREAK	10/16 Chapter 7	10/18 Chapter 7 ALEKS 9
10/21 Chapter 8 Quiz #6	10/23 Chapter 8	10/25 Chapter 9 ALEKS 10
10/28 Chapter 9 Quiz #7	10/30 Chapter 9	11/1 Chapter 9 ALEKS 11
11/4 Chapter 10 Quiz #8	11/6 Chapter 10	11/8 Chapter 10 ALEKS 12
11/11 Chapter 10 Quiz #9	11/13 Chapter 5	11/15 **Exam Three** (chapters 7-10) ALEKS 13
11/18 Chapter 5	11/20 Chapter 5	11/22 Chapter 11 ALEKS 14
11/25 Chapter 11 Quiz #10	11/27 **Thanksgiving**	11/29 **Break**

12/2 Chapter 11 ALEKS 15	12/4 **Exam Four** **(**Chapters 5, 11)	12/6 **Course Review**

Final Exam: Friday, December 13, 2019, 8:30 – 11:00 am

Last day to drop a course: September 13

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

Chem 111 Lab Schedule

	Lab	Assignments Due
8/27	Safety, Lab Check-in	Math Review-Completed in lab
9/3	Volumetric Measurements	Volumetric Measurements Pre-Lab Notebook
9/10	Empirical Formula Determination	Volumetric Measurements Report Emp. Formula Pre-Lab Notebook
9/17	Solution Preparation and Excel Instruction	Empirical Formula Report Solution Prep Pre-Lab Notebook
9/24	Stoichiometry	Solution Prep Report Stoichiometry Pre-Lab Notebook
10/1	Thermochemistry	Stoichiometry Report Thermochemistry Pre-Lab Notebook
10/8	Solution Calorimetry	Thermochemistry Report Calorimetry Pre-Lab Notebook
10/15	Fall Break	
10/22	Project	Calorimetry Report Lab Notebook Pages
10/29	Spectroscopy	Project Report and Evaluations Spectroscopy Pre-Lab Notebook
11/5	Project	Spectroscopy Report Lab Notebook Pages
11/12	Modeling: Lewis Structures and Molecular Geometry	Project Report and Evaluations Modeling Lab Report
11/20	H_2 Production: Reaction of a Metal with Acid	H_2 Production Pre-Lab Notebook
11/26	No Lab	**H_2 Production Report Due 11/25 during lecture**
12/3	**Laboratory Practical,** Check-out	