

General Chemistry CHEM 112 Spring 2020

Professor: Christl Zaccagnino

Office: Adjunct Office Jepson 433

Contact: czaccagn@umw.edu

Lecture: MW 6:00-7:15 pm, Jepson 225

Lab: R 7:30-10:15 pm, Jepson 214

Office Hrs: M 4:00-5:30 pm; W 4:00-5:30 pm; contact via email.

Required Principles of Chemistry: A Molecular Approach, 3rd ed., Tro

Materials: Subscription to ALEKS

Coursepack for Sections 5 & 6

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 for Each	Percent of Total
ALEKS Pie Completion	40	4%
ALEKS Objective Completion	100	10%
Quizzes (best 8 of 9)	25	18%
Laboratory Reports	100	25%
In-Class Exams (best 3 of 4)	100	23%
Final Exam	200	<u>20%</u>
		100%

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

Grades will be determined on the following point scale:

Points Accumulated	Letter Grade	Points Accumulated	Letter Grade
\geq 93%	A	76.9-73.0 %	C
92.9-90.0 %	A-	72.9-70.0 %	C-
89.9-87.0 %	B+	69.9-65.0 %	D+
86.9-83.0 %	B	64.9-60.0 %	D
82.9-80.0 %	B-	Below 60.0 %	F
79.9-77.0 %	C+		

Course Requirement: A course grade of **C or better in CHEM 112** will be required to enroll in most upper level chemistry courses.

Grades: Students are expected to keep track of their grades using Canvas. The weighted average as you proceed through the course is provided in the Canvas Gradebook, along with individual assessment grades by category. Gradebook has the function of dropping lowest grades for certain assignments for all students. Therefore, all grades are recorded, even zeros, but for the lowest score of the input grades for quizzes is automatically dropped in the running calculation. Likewise, the lowest scores for exams are automatically dropped in the running calculation. As new grades are entered, the course grade is recalculated.

***The Canvas Gradebook is only a reporting tool and is NOT used for official grade reporting, nor is it available to anyone other than the instructor and student. A weighted grade can only weight completed work and thus is limited to an extent on accuracy until all assignments are completed.

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.

Prohibition of Recording

Classes: 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](#).

Quizzes: A total of nine 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 quiz grade 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 makeup exams. If you can't take the exam, you must talk to me immediately to make arrangements - BEFORE THE EXAM, NOT AFTER-, which may be possible, but NOT guaranteed. Under no circumstances will a make-up exam be given after the due date. Please do not ask.** The lowest exam score will be dropped, whether due to absence or not. **If you miss more than one exam, each additional missed exam will be counted as a grade of zero. No extra credit will be given for any lecture or lab.**

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. 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.

You may share data with your partner in lab, but you may NOT copy another person's lab notebook, post lab calculations, question answers or graphs, including printing out multiple copies of the same graph.

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.**

*****If a student is unable to attend class on the due date of a lab report, the report may be submitted electronically - either scanned copies or legible photos of each page are acceptable - by the end of the regular lab period in order to document completion of the report on time. PLEASE NOTE – a hard copy of the report must still be turned in for grading.*****

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 will most likely not be possible due to the manner in which our labs are scheduled.

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 (100 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 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.

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.

Title IX Resources	Confidential Resources
<p>Stephanie Lucas-Waverly Title IX Coordinator Office of Title IX Fairfax House 540-654-5656 slucaswa@umw.edu</p> <p>Crystal Rawls Title IX Deputy for Students UC 303 540-654-1801 crawls@umw.edu</p>	<p><i>On-Campus</i> Talley Center for Counselling Services Lee Hall 106 540-654-1053</p> <p>Student Health Center Lee Hall 112 540-654-1040</p> <p><i>Off-Campus</i> Empowerhouse 540-373-9373</p> <p>RCASA 540-371-1666</p>

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.

How to Succeed in Chem 112:

- **Treat Chemistry like you would participating in a sport – practice every day!**
- **So, DO PROBLEMS EVERY DAY!!!**
- No, seriously, do problems every day! Don't wait until the last minute to complete the problem sets. You will not have time to ask for help if you are struggling with the material.
- **Do not simply read through example problems and solutions** and think to yourself “that makes sense.” You will most likely not be able to reproduce the solution or extend the concept on an exam or quiz. (In case you doubt this... Imagine watching another person working out on the treadmill or doing crunches. Are you increasing your cardiovascular health or toning your stomach by “just watching”?)
- **DO NOT try to memorize “everything” the night before an exam or quiz.** Exams will be composed of mostly free-response questions, and memorization will not help very much. Waiting until the night before will not help you achieve high scores on your quizzes and exams. ***Plan on at least three hours of time at home for every hour of class.***
- Spend about one hour per day on chemistry (reading, reviewing notes, **doing problems**)
- Attend all lectures, sit near the front, and take careful notes
This implies that you will not be engaged in social media during lecture!
- 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
Forming a study group is a great way to enhance your learning
- 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

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.

SYLLABUS SUBJECT TO CHANGE

Lecture	Lecture	Assignments	Lab
1/13 Kinetics: Rates and Mechanisms (16)	1/15 Kinetics: Rates and Mechanisms (16)		Lab Check-In/Safety; Solution Preparation, Volumetric Measurements
1/20 MLK HOLIDAY No Classes	1/22 Kinetics/ Equilibrium: The Extent of Reactions (17) Quiz #1	PS1	No Lab
1/27 Equilibrium: The Extent of Reactions(17)	1/29 Equilibrium: The Extent of Reactions(17) Quiz #2	PS2	Kinetics: Reaction of Crystal Violet and NaOH
2/3 Exam #1 (Chapters 16-17)	2/5 Acid/Base Equilibria (18)	PS-Practice for Exam	Equilibrium Studies
2/10 Acid/Base Equilibria (18)	2/12 Acid/Base Equilibria (18) Quiz #3	PS3	Titrations
2/17 Ionic Equilibria in Aqueous Solutions(19)	2/19 Ionic Equilibria in Aqueous Solutions(19) Quiz #4	PS4	Determining K_a of a Weak Acid
2/24 Exam #2 (Chapters 18-19)	2/26 Properties of Mixtures: Solutions & Colloids (13)	PS- Practice for Exam	Project 1
3/2 SPRING BREAK	3/4 SPRING BREAK		SPRING BREAK
3/9 Properties of Mixtures: Solutions & Colloids (13)	3/11 Ionic Equilibria in Aqueous Systems (19) Quiz #5	PS5	Boiling Point Elevation
3/16 Ionic Equilibria in Aqueous Systems (19)	3/18 Ionic Equilibria in Aqueous Systems (19) Quiz #6	PS6	Solubility of Potassium Hydrogen Tartrate
3/23 Exam #3 (Chapters 13,19)	3/25 Thermodynamics: Entropy, Free Energy& Direction of Reactions (20)	PS- Practice for Exam	Titration Curves
3/30 Thermodynamics (20)	4/1 Thermodynamics (20)/ Electrochemistry (21) Quiz #7	PS7	Project 2
4/6 Electrochemistry: Chemical Change & Electrical Work (21)	4/8 Electrochemistry: Chemical Change & Electrical Work (21) Quiz #8	PS8	Delightfully Unidentified Lab Fun
4/13 Electrochemistry: Chemical Change & Electrical Work (21)	4/15 Nuclear Reactions & Their Applications (22) Quiz #9	PS9	Redox Titration
4/20 Exam #4 (Chapters 20-22)	4/22 Course Review	PS- Practice for Exam	Laboratory Final Check-out

Cumulative ACS Final Exam: Monday April 27th; 7:00 p.m. – 9:30 p.m.