Foundations of Chemistry: Fall 2019
Chemistry 101

Instructor:

Dr. Leanna C. Giancarlo

Office: 436 Jepson

Phone: 654-1407
email: lgiancar@umw.edu
website: http://canvas.umw.edu

Lecture: MWF 10:00 – 10:50 a.m.; Jepson Science Center 454

Office Hours:

MT 1:00 – 2:00 pm
F 2:00 – 3:00 pm or by appointment

Required Course Materials:

Text: Giancarlo, Leanna C. and Scott, Raymond B. *Foundations of Chemistry* available on Canvas (see above) as a downloadable electronic file. (You may print the text or use it as an eBook.)

CHEM 101 Course Pack

ALEKS (aleks.com: online learning tool); available through the Bookstore or directly from the website
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.

Course Description and Objectives: Chemistry is a quantitative science and is grounded in a mathematical and experimentally derived description of nature. This course is designed to develop fundamental mathematics skills and introduce foundational chemistry concepts for students intending to major in a scientific field and who will subsequently enroll in General Chemistry. Use of mathematics will be stressed in the context of chemical problems involving measurement, atoms, molecules, reactions (stoichiometry) and aqueous solutions.

The course is centered around development of critical thinking and problem-solving skills, especially those required to successfully navigate the "word problems" that comprise a mathematical and experimental science like Chemistry. Problem-solving skills and strategies are emphasized in accord with the numerical literacy inherent in the discipline. To succeed in this course, these problem-solving skills must be practiced and developed. By attending lectures faithfully and completing the suggested practice problems and

assignments, each student can begin to acquire the skills necessary to become a critical thinker. After completing the course, a student should

- Understand how to extract information from a chemical "word problem"
- Develop fundamental number skills related to solving chemical problems
- Be able to use information to solve problems related to chemical principles involving measurement, atomic structure, reactions (stoichiometry) and aqueous solutions

Honor System: All graded work (hourly exams, online exercises, ALEKS, extra credit assignments, *graded* assignments, final exam) must be your own. Online submission constitutes you abiding by the Honor System and pledging as such. All written work must have the Honor Pledge written in full and your signature. You must 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*
It is recommended that the *suggested* problems (i.e., not submitted for a grade) be done individually and then as a group when questions arise. **No late assignments will be accepted**. Please, discuss difficulties with the homework problems or lecture material with me.

Grading:

3 Hourly Exams at 100 points each	300 points
Graded Team Activities	180
In Class Assessments (best 5 at 20 points each)	100
ALEKS (objectives and overall pie chart completion; see below for details)	170
Cumulative Final Exam	250

Students with an exam grade of 70 or less will receive a midsemester report of unsatisfactory.

Extra credit will be awarded for **active** participation in PASS (see below). Students can earn 3 points per week for attendance and active involvement in a PASS section up to a total of 30 points extra credit over the entire semester.

Grades will be determined on the following point scale

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+		

Class Attendance: Class attendance is highly recommended. The material discussed in lecture frequently has a different emphasis from that provided by the textbook. Also, time has been set aside in the course schedule to discuss example problems. Students are responsible for all covered materials during a missed class. Missed exams **cannot** be made up. Exams will be rescheduled in the event of an excused absence due to an emergency. (Immediate notification of the instructor is mandatory). Lateness to lecture is distracting, and students should attempt to be on time. Lateness to an exam will result in less time allowed for completion of the exam.

Team Activities: Occasional class periods, mostly Fridays, there will be a graded team activity to be completed by students in teams of 3 or 4. Teams will be chosen for each activity at the beginning of the class at random. The team activities are listed in the schedule given below. The activities must be submitted by the end of the class period and will be graded; these serve as 18% of your grade and because of the nature of the activities cannot be made up because of a missed class.

Quizzes: Periodically, there will be a quiz given in class on the material that was presented. These in-class quizzes will examine your knowledge of fundamental concepts and math skills and typically take 10 minutes.

ALEKS: ALEKS is an adaptive learning platform from McGraw-Hill Education. You will take "quizzes" (complete learning objectives) using this platform. ALEKS will help you to

- Review topics and skills you need refreshing
- Practice new material that you are ready to learn
- Review and prepare for exams
- Track your performance and progress with personalized reports ("pie" chart)

There are six (6) scheduled ALEKS objective completion "quizzes" worth 20 points each due as indicated on the course calendar below by 8 am. The dates for these will not be changed. This accounts for 120 points of your ALEKS grade. In addition, you can earn up to 50 points for completion of the ALEKS pie by **Monday, December 9th at 8 am**. The points for the pie are assigned as follows:

Percentage of the ALEKS pie completed by the last day of class	Pie completion points
≥ 95	50 points
88 – 94	45
80 – 87	40
70 – 79	35
60 – 69	30
50 – 59	25
40 – 49	20
30 – 39	15
20 – 29	10
10 – 19	5
≤ 10	0

PASS: Extra credit in this course can be earned through attendance at Peer Assisted Study Skills sessions. These hour-long sessions are meant to bolster your study, math and/or chemistry skills. There will be several sessions held each week; for each weekly attendance (i.e., attending one of the numerous sessions in a given week), you will receive 3 points toward your final grade up to 30 points total. 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.

Disability Services: The Office of Disability Services 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.

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.

Other "helpful" information:
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.
Success in chemistry requires considerable work on your part. Successful students typically spend a minimum of 1 hour per day on chemistry. This time is devoted to reviewing notes, attempting the suggested/assigned problems and reading ahead for the next lecture. Some of their "secrets" include (but are not limited to)

- reading the material prior to class.
- attending the lectures.
- taking good notes.
- asking questions. (The only "stupid" question is the one that goes unasked.)
- solving the suggested problems for each chapter. (Attempting extra problems is also a great idea. As in all aspects of life, "practice makes perfect".)
- consulting your peers when you are struggling with the solution to a suggested problem. (First, they may have a different slant or see the problem in a different light. Second, scientists typically work in teams. Each member of the team is responsible for a particular aspect of the problem; therefore, each scientist must understand what each of the other members of the team does and have requisite background knowledge.)
- enlisting the aid of the instructor (office hours or appointments, before/after class).
- reviewing the appropriate sections of the text and all notes after class.
- attempting all suggested and assigned problems by yourself

Course Outline:

UNIT ONE		**UNIT TWO**	
1	Active Learning, Introduction to Chemistry	**5**	Introduction to Gases
2	Atomic Theory, Matter, Units and Conversion Factors	**6**	Measuring Pressure and More Gases
3	Significant Figures	**7**	Periodic Table, Atomic Mass and Isotopes, Graphing
4	Learning about Learning, Nomenclature (part 1), More on Conversion Factors	**8**	Exam Preparation
UNIT THREE			
8	Nomenclature (part 2), Molar Mass		
9	Chemical Formula Determination		
10	Balancing Equations		

11	Chemical Reactions and Net Equations
12	Stoichiometry

8/26 Introduction	8/28 Study Strategies and Chapter 1	8/30 Chapter 1
9/2 LABOR DAY – no class	9/4 **Team Activity 1**	9/6 Chapter 2
9/9 Chapter 2 ALEKS OBJECTIVE due	9/11 Chapter 3	9/13 **Team Activity 2**
9/16 Chapter 3	9/18 Chapter 4	9/20 Chapter 4
9/23 ALEKS OBJECTIVE due **Exam One**	9/25 Chapter 5	9/27 **Team Activity 3**
9/30 Chapter 5	10/2 Chapter 6	10/4 Chapter 6 ALEKS OBJECTIVE due
10/7 Chapter 6	10/9 Chapter 7	10/11 **Team Activity 4**
10/14 FALL BREAK	10/16 Chapter 7	10/18 Chapter 8
10/21 ALEKS OBJECTIVE due **Exam Two**	10/23 Chapter 8	10/25 **Team Activity 5**
10/28 Chapter 8	10/30 Chapter 9	11/1 Chapter 9
11/4 Chapter 9	11/6 Chapter 9	11/8 Chapter 10 ALEKS OBJECTIVE due
11/11 Chapter 10	11/13 Chapter 11	11/15 Chapter 11
11/18 Chapter 11	11/20 Chapter 12	11/22 Chapter 12
11/25 Chapter 12 **Team Activity 6**	11/27 THANKSGIVING BREAK	11/29 THANKSGIVING BREAK
12/2 **Team Activity 6**	12/4 ALEKS OBJECTIVE due **Exam Three**	12/6 **Course Review**

Final Exam: Monday, December 9, 2019, 8:30 – 11:00 am