CHEM 103-710 General Chemistry
University of Delaware
Spring Session, 2015

Instructor: Dr. Michael A. Stemniski

Office Hours: Before class, after class or by appointment

Phone: 302-239-4890

e-mail: mastem@udel.edu

Lectures: Monday and Wednesday

Time: 2:15 P.M. - 3:30 P.M.

Location: Room 416

Texts: Chang/Goldsby - Chemistry (11th Ed) - Required
Chang - Student Study Guide (11th Ed) - Optional
Chang - Student Solution Manual (11th Ed) - Optional

NOTE: Attendance to class is not mandatory. However, excess absences will severely affect your grade as pertinent information concerning the course is presented in lecture.

Laboratory Assignments

Location: 054 Drake Hall (Newark)

Scheduled Time: 3:30 P.M. - 6:30 P.M., Friday

Laboratory Manual: General Chemistry Laboratory Manual - Required

Instructor: Alize Marangoz alize@udel.edu

NOTE: Attendance to laboratory is mandatory and it is imperative that the entire experiment be read and the procedure familiarized before each session. Proper dress is required and goggles must be worn at all times in the laboratory.

ADA Reasonable Accommodations

Pursuant to Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, the University provides reasonable accommodations for individuals with documented disabilities. Students registered in this course who need reasonable accommodations should make this known to the instructor and also document the needs with the Wilmington Associate in Arts Office

CHEM 103 - Spring 2015 - Tentative Class/Examination Schedule

Text Assignment	Exam Assignment
Chang, Chap 1,2	Exam I, Monday 3/2
Chang, Chap 3,4,5	Exam II, Monday 3/23
Chang, Chap 6,7,8	Exam III, Wednesday 4/22
Chang, Chap 9,10,11	Exam IV, Wednesday 5/13
	Final Exam - Wednesday 5/20

CHEM 103 - Spring 2015 - Proposed Laboratory Schedule

Feb 20	Exp 1	Safety/Lab Techniques
Feb 27	Exp 2	Density
Mar 06	Exp 5	Properties of Hydrates
Mar 13	Exp 6	Limiting Reactants
Mar 20	Exp 13	Types of Reactions
Mar 27	Exp 10	Spectroscopy
Apr 03		Spring Break - No lab
Apr 10	Exp 3	Physical and Chemical Properties
Apr 17		No Lab Exp 11 Lewis Structures - in class on May 11
Apr 24	Exp 27	Vitamin C Analysis
May 01	Exp 19	Equivalent Weight of an Unknown Acid
May 08	Exp 15	Thermodynamics - Calorimetry
May 15	Exp 33	Solution Concentration

CHEM 103 - Spring 2015 - Grading Policy

The minimum requirements for obtaining a passing grade and credit in CHEM 103, Spring 2015 are:

a. Completion of the laboratory experiments/reports/meetings

b. Completion of the four scheduled examinations

c. Completion of the final exam

d. Obtaining an average of at least 60% according to the suggested scale

A) Examinations (50%) - Four 100 percentage point examinations will be given and must be taken by all students. An unexcused missed examination will be recorded as a ZERO and may not be made up. All exams will cover material in lecture and material from the assigned problems (but not from the laboratory)

B) Laboratory (25%) - From the laboratory meetings an average of the scores on the laboratory reports will determine the laboratory grade

C) Final Exam (25%) - The final exam will be given at the conclusion of the course and must be taken by all students

Note: Failure to complete any of the above requirements will merit no credit for CHEM 103, Spring 2015

If an examination is missed for whatever reason, it is the responsibility of the student to contact the instructor within a reasonable period of time. If not, a grade of zero will be assigned and/or it will be assumed that the student does not wish to continue in the course.

The University of Delaware policy on Academic Honesty will be followed in this course. Violations of any parts of this policy could mean your removal from this course with no academic credit.

The Family Educational Rights and Privacy Act of 1974 (FERPA) stipulates that test/lab grades cannot be posted, given over the phone, or by e-mail. These grades, however, can be released to students in person.

The following grade scheme will be followed with averages rounded to the nearest tenth (0.1) of a point:

Average	Grade	Average	Grade	Average	Grade
93.3 - 100	A	80.0 - 83.2	B-	66.7 - 69.9	D+
90.0 - 93.2	A-	76.7 - 79.9	C+	63.3 - 66.6	D
86.7 - 89.9	B+	73.3 - 76.6	C	60.0 - 63.2	D-
83.3 - 86.6	B	70.0 - 73.2	C-	0.00 - 59.9	F

Suggested problems for CHEM 103, Chang 11th Ed

Ch 1: 2, 3a,b,c,d, 5, 6, 7, 8, 12a,b,c,d, 16, 18, 19, 21, 22, 23a,b,c, 24a,b, 25, 26, 29 30, 31, 32, 33, 34, 35, 36, 39a,b,c, 40a,b, 45, 50a,d, 56

Ch 2: 1, 5, 9, 12, 13, 16, 18, 33, 36, 43, 44, 45a,b,d,e, 57a,b,c,d,e,f,g,k,l,m,n, 58, 59a,b,d,f,h,i, 60a,b,f,g,i,j, 57h,l,j, 59g,j, 60h,k, 102

Ch 3: 13, 14, 15, 16, 19, 20, 23, 24, 26, 30, 39, 40, 43, 44, 50, 52, 59a,b,c,d, 60a,b,c,d,e,g,h, 65, 66, 67, 68, 71, 73, 74, 83, 86, 89, 90, 94

Ch 4: 1, 2, 25, 26, 32, 44a,b,c,d, 46, 47a,b,f,h,k,n, 50a,d,g,h, 55, 56, 65, 66, 74, 76, 89, 90, 92

22a: $Na_2S(aq) + ZnCl_2(aq) \rightarrow NaCl(aq) + ZnS(s)$

22c: $Mg(NO_3)_2(aq) + NaOH(aq) \rightarrow NaNO_3(aq) + Mg(OH)_2(s)$

34b: $H_2CO_3(aq) + NaOH(aq) \rightarrow Na_2CO_3(aq) + H_2O(l)$

34c: $HNO_3(aq) + Ba(OH)_2(aq) \rightarrow Ba(NO_3)_2(aq) + H_2O(l)$

Ch 5: 13, 19, 20, 22a, 23, 31, 32, 33, 34, 35, 36, 38, 40, 41, 43, 44, 48, 53, 55, 67, 72, 81, 87

Ch 6: 1, 3, 7, 11, 17, 18, 24a,b, 32, 33, 34, 37, 51, 53, 54, 57, 61, 62, 64

Ch 7: 15, 16, 48, 50, 52, 53, 55, 56, 58, 62, 63, 64, 65, 66, 69a,b,c,d, 70, 76, 78(B,P,Kr), 87, 88, 90(Ge,Fe,Zn), 91, 98a, 121a, 130

Ch 8: 5, 8, 12, 13, 16, 20a,b, 21, 23a,b, 24, 34, 35, 37a,b,c, 39, 40, 41, 43a,b, 48, 49, 51, 59a, 61a, 62

Ch 9: 6, 17a,b, 18d, 19, 20, 30, 35, 38, 39, 43a,b,c, 44a,f, 45f,g, 51, 53, 63a,b, 72a

Ch 10: 2, 7a,b,c, 9a,b,c, 10b,d, 31, 36a,b,c, 38, 72, 77, 80a,b,c, 82

Ch 11: 6, 11, 12, 18a, 21, 23, 27, 34, 49, 57, 62, 68, 71, 84, 87

CHEM 103 Course Learning Goals

After successfully completion of this course, a student should be able to:

1. Define pertinent terms relating to the study of general chemistry
2. Identify the physical/chemical properties/changes of matter
3. Determine the number of significant figures in values and calculations
4. Understand the historical development of the atomic theory
5. Write formulas and names of chemical compounds and balance equations
6. Perform calculations in stiochiometric relationships
7. Calculate answers to fundamental gas law problems
8. Apply energy changes in thermochemistry to the solving of problems including Hess's Law
9. Identify the characteristics of the modern quantum theory to the model of the atom including electron configuration
10. Determine the relationship of the elements and their positions on the periodic table including all physical and chemical characteristics
11. Calculate the bonding character of compounds using electronegativity
12. Determine the three dimensional structure of compounds using the VSEPR model
13. Define the characteristics of the kinetic theory of matter as related to phase diagrams
14. Work together in discussing ideas and solving problems
15. Communicate in written and oral formats
16. Find sources and information to solve problems

CHEM 103 QUESTIONNAIRE

NAME _____

ADDRESS _____

_____

_____

PHONE _____

E-MAIL _____

HIGH SCHOOL ATTENDED _____

IF NOT IN DELAWARE, WHERE LOCATED _____

PREVIOUS CHEMISTRY COURSES _____
INCLUDING HIGH SCHOOL

_____

_____

WHY ARE YOU TAKING THIS COURSE?

WHAT GRADE DO YOU NEED IN THIS COURSE?_____WANT?_____EXPECT?_____

TELL ME A LITTLE ABOUT YOURSELF -

Math Skills Quiz NAME _____

Place all answers in the spaces provided below.

1. _____ A gallon of milk weighs 3.6 kilograms. How many gallons are there in a milk can which contains 64 kilograms of milk?

2. _____ $\frac{75}{X} = \frac{1.49}{4}$ What is the value of X?

3. _____ $909 = 60 \times K \times 1.5$ What is the value of K?

4. _____ When roller skating, there must be two girls and one boy in a trio. If there are 20 boys and 32 girls, how many trios can they make?

5. _____ The cargo from three trucks fits into two train cars, with each loaded train car weighing 9500 kilograms. What is the total weight of the loaded train cars if 18 trucks were unloaded?

6. _____ Initially, there are 500 grams of sugar in 1 liter of applesauce; but then 2 liters of unsweetened applesauce are added to the first liter. What is the final concentration of sugar per liter of applesauce?

7. _____ $\frac{123 \times 68}{476 \times 12} = Y$ What is the value of Y?

8. _____ $(16)(3.20 \times 10^{20}) = X$ What is the value of X?

9. _____ $\ln(12.5) = Y$ What is the value of Y?

10. _____ $\log X = 14.5$ What is the value of X?