CHEM 103 General Chemistry
University of Delaware
Summer College 2012

Instructor: Dr. Michael A. Stemniski

Office: 171 Brown Lab

Office Hours: After class or by appointment

Phone: 302-239-4890 (H)

e-mail: mastem@Udel.edu

Lectures: July 9 to August 9, Inc. Final Exam - August 10

Time: 9:45 A.M. - 11:15 A.M., daily

Location: 207 Brown Lab

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 essentially mandatory for Summer College
        students. Absences will severely affect your grade as pertinent
        information concerning the course is presented in lecture.

Laboratory Assignments

Location: 064 Drake Hall

Scheduled Time: 3:00 P.M. - 6:00 P.M., Monday, Wednesday, Friday

Laboratory Manual: Experiments for General Chemistry - Required

Instructor: Dr. Barbara Jezl

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 Office of
Americans with Disabilities Act.

CHEM 103 – Summer College 2012 – Tentative Class/Examination Schedule

Text Assignment	Exam Assignment
Chang, Chap 1,2	Exam I, Monday 7/16
Chang, Chap 3,4,5	Exam II, Tuesday 7/24
Chang, Chap 6,7,8	Exam III, Wednesday 8/1
Chang, Chap 9,10,11	Exam IV, Wednesday 8/8
	Final Exam – Friday 8/10

CHEM 103 – Summer College 2012 – Proposed Laboratory Schedule

Jul 11		Safety Orientation and Exp 1 Laboratory Techniques
Jul 13	Exp 2	Density
Jul 16	Exp 3	Physical and Chemical Properties
Jul 18	Exp 5	Properties of Hydrates
Jul 20	Exp 6	Limiting Reactants
Jul 23	Exp 13	Types of Reactions
Jul 25	Exp 15	Thermodynamics – Calorimetry
Jul 27	Exp 32	Phosphates in Water
Jul 30	Exp 9	Trends in the Periodic Table
Aug 01	Exp 10	Spectroscopy
Aug 03	Exp 11 Exp 12	Lewis Structures Using Lewis Structures

CHEM 103 - Summer College 2012 - Grading Policy

The minimum requirements for obtaining a passing grade and credit in
CHEM 103 - Summer College 2012 are:

    a. Completion of ten laboratory experiments

    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 reading (but not from the
laboratory).

B) Laboratory (25%) - Eleven experiments are scheduled and the ten best
scores 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, Summer College 2012

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:

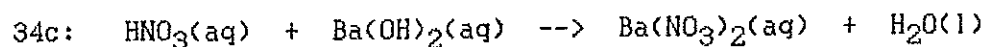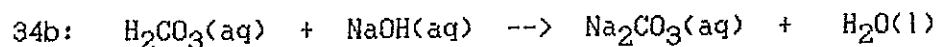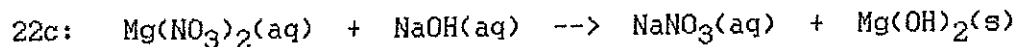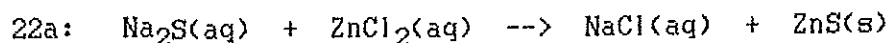| Average	Grade	Average	Grade	Average	Grade
93.3 - 100	A	80.0 - 83.2	B-	66.7 - 69.9	D+
90.0 - 93.2	A-	76.7 - 79.9	C+	63.3 - 66.6	D
86.7 - 89.9	B+	73.3 - 76.6	C	60.0 - 63.2	D-
83.3 - 86.6	B	70.0 - 73.2	C-	0.00 - 59.9	F

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,l, 60a,b,f,g,l,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: $Na_2S(aq)$ + $ZnCl_2(aq)$ --> $NaCl(aq)$ + $ZnS(s)$

22c: $Mg(NO_3)_2(aq)$ + $NaOH(aq)$ --> $NaNO_3(aq)$ + $Mg(OH)_2(s)$

34b: $H_2CO_3(aq)$ + $NaOH(aq)$ --> $Na_2CO_3(aq)$ + $H_2O(l)$

34c: $HNO_3(aq)$ + $Ba(OH)_2(aq)$ --> $Ba(NO_3)_2(aq)$ + $H_2O(l)$

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 SUMMER COLLEGE QUESTIONNAIRE

NAME _____

CAMPUS ADDRESS _____

_____

_____

PHONE _____

E-MAIL _____

HIGH SCHOOL ATTENDING _____

IF NOT IN DELAWARE, WHERE LOCATED _____

WHAT OTHER COURSE ARE YOU TAKING AND AT WHAT TIME?   _____

PREVIOUS CHEMISTRY COURSES _____

_____

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. Use the back of the sheet if necessary for calculations.

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. _____ $\dfrac{75}{X} = \dfrac{1.49}{4}$ 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. _____ $\dfrac{123 \times 68}{476 \times 12} = Y$ 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?