Instructor:  Dr. Michael A. Steminski
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
Chang, Chap 1,2
Chang, Chap 3,4,5
Chang, Chap 6,7,8
Chang, Chap 9,10,11

Exam Assignment
Exam I, Monday 7/16
Exam II; Tuesday 7/24
Exam III, Wednesday 8/1
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 Lewis Structures
         Exp 12 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:

<table>
<thead>
<tr>
<th>Average</th>
<th>Grade</th>
<th>Average</th>
<th>Grade</th>
<th>Average</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93.3 - 100</td>
<td>A</td>
<td>80.0 - 83.2</td>
<td>B-</td>
<td>66.7 - 69.9</td>
<td>D+</td>
</tr>
<tr>
<td>90.0 - 93.2</td>
<td>A-</td>
<td>76.7 - 79.9</td>
<td>C+</td>
<td>63.3 - 66.6</td>
<td>D</td>
</tr>
<tr>
<td>86.7 - 89.9</td>
<td>B+</td>
<td>73.3 - 76.6</td>
<td>C</td>
<td>60.0 - 63.2</td>
<td>D-</td>
</tr>
<tr>
<td>83.3 - 86.6</td>
<td>B</td>
<td>70.0 - 73.2</td>
<td>C-</td>
<td>0.00 - 59.9</td>
<td>F</td>
</tr>
</tbody>
</table>
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, 11, 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,l,i, 57h,l,J, 59g,J, 60h,k, 102

Ch 3:  13, 14, 15, 16, 19, 20, 23, 24, 25, 30, 39, 40, 43, 44, 50, 52, 59a,b,c,d, 60a,b,c,d,e,g,h, 65, 66, 67, 69, 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, 75, 89, 90, 92

  22a:  \( \text{Na}_2\text{S}(aq) + \text{ZnCl}_2(aq) \rightarrow \text{NaCl}(aq) + \text{ZnS(s)} \)

  22c:  \( \text{Mg(NO}_3\text{)}_2(aq) + \text{NaOH}(aq) \rightarrow \text{NaNO}_3(aq) + \text{Mg(OH)}_2(s) \)

  34b:  \( \text{H}_2\text{CO}_3(aq) + \text{NaOH}(aq) \rightarrow \text{Na}_2\text{CO}_3(aq) + \text{H}_2\text{O(l)} \)

  34c:  \( \text{HNO}_3(aq) + \text{Ba(OH)}_2(aq) \rightarrow \text{Ba(NO}_3\text{)}_2(aq) + \text{H}_2\text{O(l)} \)

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, 19, 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,Sn), 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

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. _____ \[
\frac{75}{x} = \frac{1.49}{4}
\] What is the value of \(x\)?

3. _____ \[909 = 60 \times x \times 1.5\] What is the value of \(x\)?

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 2500 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 \(X\)?