Instructor:  Dr. Michael A. Stemniski

Office:  235 Brown Lab

Office Hours:  Before class, after class daily or by appointment

Phone:  302-239-4890

e-mail:  mastem@udel.edu

Lectures:  January 4 to February 6, Inc.,  Final Exam - February 6

Time:  2:00 P.M. - 3:45 P.M., daily

Location:  206 Brown Lab

Texts:  Burdge - Chemistry, 3rd ed - Recommended
        Burdge - Student Solution Manual - Optional
        Burdge - Student Study Guide - 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:  022 Drake Hall

Instructor:  Lauren Matlack  lmatlack@udel.edu

Scheduled Time:  9:30 A.M. - 12:30 P.M.  Monday, Wednesday, Friday

Laboratory Manual:  Experiments for General Chemistry - Required

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 Disability Support Services.
### Text Assignment
- Burdge, Chapters 13, 14
- Burdge, Chapters 15, 16
- Burdge, Chapters 17, 18
- Burdge, Chapters 19, 20, 25

### Exam Assignment
- Exam I, Monday 1/11
- Exam II, Tuesday 1/19
- Exam III, Tuesday 1/26
- Exam IV, Thursday 2/4
- Final Exam, Saturday 2/6

### Proposed Laboratory Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Exp</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>Jan 6</td>
<td></td>
<td>Check-in, Safety, Colligative Properties</td>
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<tr>
<td>Jan 8</td>
<td>Exp 21</td>
<td>Chemical Kinetics</td>
</tr>
<tr>
<td>Jan 11</td>
<td>Exp 16</td>
<td>Equilibrium: Determination of Equilibrium Constant</td>
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<tr>
<td>Jan 13</td>
<td>Exp 17</td>
<td>Equilibrium: Le Chatelier’s Principle</td>
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<tr>
<td>Jan 15</td>
<td>Exp 20</td>
<td>pH and its Applications</td>
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<tr>
<td>Jan 16</td>
<td>No Lab</td>
<td></td>
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<tr>
<td>Jan 20</td>
<td>Exp 33</td>
<td>Determination of Solution Concentration</td>
</tr>
<tr>
<td>Jan 22</td>
<td>Exp 28</td>
<td>Qualitative Analysis: Cations: Group I</td>
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<tr>
<td>Jan 25</td>
<td>Exp 23</td>
<td>Qualitative Analysis: Anions</td>
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<td>Jan 27</td>
<td>Exp 26</td>
<td>Voltaic Cells</td>
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<tr>
<td>Jan 29</td>
<td>Exp 31</td>
<td>Radioactivity</td>
</tr>
<tr>
<td>Feb 1</td>
<td>Exp 22</td>
<td>Organic Synthesis: Preparation of an Ester</td>
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</tbody>
</table>
CHEM 102 Winter 2016 - Grading Policy

The minimum requirements for obtaining a passing grade and credit in CHEM 102, Winter 2016 are:

a. Completion of at least 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 assigned problems (but not from the laboratory).

B) Laboratory (25%) - Eleven experiments are scheduled and the best ten (10) laboratory 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

Failure to complete any of the above requirements will merit no credit for CHEM 102, Winter 2016

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 or given over the phone or 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>
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<th>Average</th>
<th>Grade</th>
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<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>
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<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: Burdoo, 3rd ed

CH 13:  1, 3, 15, 16a, 17, 32, 35, 46, 50, 57, 59, 62, 63, 66, 67, 83, 85

CH 14:  1, 6, 8, 9, 10, 15, 18, 19a,d, 23, 29a, 30, 34, 35, 44, 50, 54c,d,e, 59a, 60a,b, 63, 64, 73

CH 15:  7a,b, 9, 11, 15, 16, 18a,b,c,d, 19b,c, 20, 21, 22, 24, 25a, 26, 40, 41, 43, 48, 52, 53, 54, 58a,b, 59, 60

CH 16:  1, 3a,c,e,i, 4a,b, 5a,d, 9, 13, 17, 20, 21, 22, 23, 24, 25, 27, 28, 31, 37, 39, 41, 51, 53, 59, 60, 64a,b,e,g,h, 65a, 63, 94, 98, 100, 114, 120b, 121a

CH 17:  3, 4, 5, 7, 10, 13, 16, 20, 43, 45a,b,c,f, 47, 49, 50, 51, 57, 63, 65

CH 18:  1, 2, 4, 8, 10, 11, 14a,c, 15b, 16a,c,e, 24, 27, 28a,c, 30, 31, 41, 46a

CH 19:  1a,e, 2a,b, 10, 11, 15a,c, 21, 24a, 28a, 29, 30a, 40, 43, 44, 49

CH 20:  5, 6, 8, 19b, 20b, 27, 29, 38, 39, 44, 50

CH 25:  4, 6, 7, 13a, 19a,b,d, 31, 32
CHEM 102 Course Learning Goals

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

1. Calculate the concentrations of the fundamental solutions used in scientific experiments
2. Solve problems associated with the colligative properties of solutions
3. Determine a rate law equation from experimental data and the value of a rate constant
4. Calculate the activation energy of a typical chemical reaction
5. Write equilibrium constant expressions used to solve problems determining equilibrium constants
6. Apply LeChatelier's Principle to explain factors that affect chemical equilibrium
7. Relate the three common acid/base theories to each other
8. Determine the pH of common acid and base solutions
9. Calculate ionization constants of weak acids and weak bases
10. Identify and calculate the pH of buffer solutions
11. Determine the spontaneity of various physical and chemical processes
12. Calculate the entropy and free energy of chemical reactions
13. Relate the free energy, enthalpy, and entropy of chemical reactions
14. Balance oxidation-reduction equations by the ion electron method
15. Diagram an electrolysis cell and write the reactions at each electrode
16. Diagram a Voltaic Cell, determine the cell potential, and write the reactions taking place
17. Determine the products and balance a nuclear equation
18. Calculate the binding energy of an isotopic nucleus
19. Determine the age of a carbon-14 artifact from half-life calculations
20. Name and draw the structures of common organic compounds
21. Determine the products of simple organic reactions
22. Identify the common functional groups used to characterize organic molecules
CHEM 102 QUESTIONNAIRE

NAME ____________________________

ADDRESS ____________________________

____________________________________

____________________________________

PHONE ____________________________

E-MAIL ____________________________

HIGH SCHOOL ATTENDED ____________________________

IF NOT IN DELAWARE, WHERE LOCATED ____________________________

COLLEGE PRESENTLY ATTENDING ____________________________

HAVE YOU TAKEN CHEM 101/103 OR ITS EQUIVALENT ____________________________

IF YES - WHEN AND WHERE ____________________________

____________________________________

IF NO - WE MUST TALK

OTHER 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 -