I. Lecture-Laboratory Sections

You must be registered with one of its associated lab sections (even if you have completed the laboratory previously). If you have completed the lab and wish to apply your previous grade to the present course, please do so as soon as possible in 116 BRL (see Ms. Hill).

If you are planning to drop C103, please do so as soon as possible to free your lab space for someone else.

II. Books and Notes and Calculator

**Textbook:** Chemistry by Chang 7th Edition (required)

**Course Notes and Sample Exams** (required)

**Laboratory Manual** by UOD, Dept. of Chemistry, Kendall/Hunt Publishing Co. (required)

**Chem Skill Builder**, version 6.3 (required) [packaged with textbook]

**Study Guide by Ken Watkins** (optional)

**Solutions Manual by Brandon Cruickshank** (optional)

**An Inexpensive NON-PROGRAMMABLE NON-GRAPHING Calculator** ($5 - $10) (Must be able to +, -, x, ÷, log, In, \(x^2\), sine) Programmable graphing calculators will not be allowed in the exams, no exceptions!

I would suggest that you use this inexpensive calculator to do the problems assigned. The last thing you want to do is try and figure out how to use the calculator during an exam.

**Course Web Site:** www.udel.edu/chem/Kramer/Chem103mainframes.htm

III. Tentative Grading Scheme

**Course:** Exams 55%, Laboratory 20%, Final Exam 20%, Chem Skill Builder 5%.

**Laboratory:** Quizzes, Prelab & Expts. 60%, Lab Exam(s) 30%, Discretionary 10%.

Lab grades may be adjusted up or down to account for differences in grading standards among the TA’s.

**Letter Grade:** Based on total points as follows:

- A \(\geq 82\)
- B \(\geq 70\)
- C \(\geq 54\)
- D \(\geq 40\)

- A- \(\geq 78\)
- B- \(\geq 66\)
- C- \(\geq 48\)
- F < 40

- B+ \(\geq 74\)
- C+ \(\geq 60\)
- D+ \(\geq 44\)

**MAKE-UP EXAMINATIONS WILL NOT BE GIVEN.** If an exam is missed, the grade on the final exam will be substituted for the missing grade.

- It is expected that all laboratory work will be completed. If a lab must be missed, tell your lab instructor ahead of time, and present a valid written excuse. If a lab is missed because of an unexpected emergency, please see your lecturer immediately upon your return to class and present a valid written excuse.

- An excessive number of missed labs will result in an incomplete or a failing grade for the course.

- **Exam schedule:** Three exams on Tuesday from 5:00 – 6:45 p.m. will be held on the following dates 9/25/01, 10/23/01, 11/20/01. Room assignments will be made in class. The written laboratory exam will be held on Tuesday 11/27/01 from 5:00 – 6:15 p.m.

- **NO EXCEPTIONS WILL BE MADE!** If you have a conflict with another course, it is your responsibility to resolve the conflict. Examples of such courses are: BISC 107-440, ENGL 110-440, MATH 221-410.

**NOTE:** The 3rd exam is the Tuesday of Thanksgiving week, so plan appropriately.
IV. General Comments

A. Lectures
1. The general emphasis and material covered will be the same in all sections.
2. You should work all of the problem set exercises and as many additional problems as necessary for mastery of the quantitative material.
3. You may find it useful to maintain a running list of chemical terms, symbols, and equations for review purposes.
4. Additional material may be handed out as the course progresses.
5. **Do not fall behind!** Look over upcoming material before class; this will enable you to get more out of the lecture.
6. You are responsible for assigned material in the text even if it is not explicitly covered in lecture. Lectures emphasize the main themes.
7. You are responsible for all material, including announcements, covered in lecture, whether or not you are present.

B. Laboratory
1. Labs start on Wednesday, September 5. You will see a safety film and register your Chem Skill Builder disks.
2. Your first experimental lab starts on Wednesday, September 12. **GOGGLES** are required in the laboratory. You will not be admitted to the laboratory without a pair. Purchase them at the Bookstore. Please consult the laboratory schedule for details.
3. **Prelab assignments** are to be turned in at the beginning of the laboratory period. They are to be done before you go to lab.
4. **ALL laboratory work** is to be completed and turned in before you leave lab. This includes the calculations and post lab question.

C. Skill Builder
1. Skill Builder is designed as an electronic homework system. You will get the most benefit from it when you complete the sections as the work is covered in class.
2. Skill Builder floppy disks will be regularly collected and returned in your lab section.
3. The last assignment will be collected in your respective lecture section on either Monday, December 3 or Tuesday December 4.

D. Initial Assignments
1. Read Chapter 1 in the text.
2. **KNOW** how to use the math functions in Appendix 4.
3. Learn the **names and symbols** only, of the following in the periodic table: Group IA: H to Cs; Group IIA: Be to Ra; Group IIIA: B to Tl; Group IVA: C to Pb; Group VA: N to Bi; Group VIA: O to Te; Group VIIA: F to I; Group VIIA: He to Rn. In addition, the following elements: 21 to 30 and 47, 48, 79, and 80.
   Week 1: Cations: Invariant and Variable
   Week 2: Anions: Hydride to amide
   Week 3: Anions: Oxyanions
   Week 4: Acids and Bases
   Week 5: Salts and Compounds

E. Important Dates
1. Tuesday, 9/11/01 - Last day of late registration and free drop/add.
2. Tuesday, 10/30/01 - Last day to change registration or withdraw without academic penalty.
3. Friday, 10/26/01 – Fall Break
4. Wednesday, 12/5/01 - Last class day.

V. Tentative Lecture - Lab Schedule

   NOTE: Lab week runs from Wednesday to Tuesday of the following week.

<table>
<thead>
<tr>
<th>DAYS</th>
<th>TEXT CHAPTERS</th>
<th>EXPT.</th>
<th>LAB ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 08/28 – F 08/31</td>
<td>1</td>
<td></td>
<td>NO LAB</td>
</tr>
<tr>
<td>T 09/04 – F 09/07</td>
<td>2</td>
<td></td>
<td>Safety &amp; Disk Registration</td>
</tr>
<tr>
<td>M 09/10 – F 09/14</td>
<td>3</td>
<td>1A*</td>
<td>Density (packet)</td>
</tr>
<tr>
<td>M 09/17 – F 09/21</td>
<td>4</td>
<td>2A*, 3A*</td>
<td>Separation of Mixture/Chromatography (packet)</td>
</tr>
<tr>
<td>M 09/24 – F 09/28</td>
<td>5</td>
<td>4</td>
<td>Hydrates</td>
</tr>
<tr>
<td>M 10/01 – F 10/05</td>
<td>6</td>
<td>5A*</td>
<td>Limiting Reagent (packet)</td>
</tr>
<tr>
<td>M 10/08 – F 10/12</td>
<td>7</td>
<td>6A*, 7</td>
<td>Molar Volume (packet) &amp; Molecular Wt. Of a Volatile Liquid</td>
</tr>
<tr>
<td>M 10/15 – F 10/19</td>
<td>8</td>
<td>14</td>
<td>Calorimetry</td>
</tr>
<tr>
<td>M 10/22 – R 10/25</td>
<td>9</td>
<td>9A*</td>
<td>Spectroscopy (packet)</td>
</tr>
<tr>
<td>M 10/29 – F 11/02</td>
<td>9 &amp; 10</td>
<td>12</td>
<td>Common Reactions</td>
</tr>
<tr>
<td>M 11/12 – F 11/16</td>
<td>11</td>
<td>13</td>
<td>Freezing Point Depression</td>
</tr>
<tr>
<td>M 11/19 – W 11/21</td>
<td>11</td>
<td></td>
<td>LAB EXAM</td>
</tr>
<tr>
<td>M 11/26 – F 11/30</td>
<td>12</td>
<td></td>
<td>NO LAB</td>
</tr>
<tr>
<td>M 12/03 – W 12/05</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Labs listed with an A are in the course notes.

Exam Dates

Exam Dates: 9/25/01, 10/23/01, 11/20/01 – Tuesdays 5:00 – 6:45 p.m.
Final Exam Week: Friday, 12/7/01 – Friday, 12/14/01
Lab Exam: 11/27/01, Tuesday 5:00 – 6:15 p.m.
Problem Assignments

Assigned problems are divided into two categories, graded and non-graded problems. All the **graded problems** are contained on Chem Skill Builder. Your personal computer disk is to be handed in during the lab during the following weeks: 9/17 to 9/20; 10/15 to 10/18; 11/12 to 11/15 and in your lecture section on Monday, 12/3 or Tuesday, 12/4. Your personal disk will be returned to you by the TA during the lab period. Keep in mind that these problems constitute 5% of your overall grade and **it is your responsibility** to keep track of the dates and make sure that everything is in order.

Skillbuilder Assignments

<table>
<thead>
<tr>
<th>Week of:</th>
<th>Assignments Due</th>
<th>Week of:</th>
<th>Assignments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/17</td>
<td>1. Introduction to Chemistry</td>
<td>11/12</td>
<td>9. Atomic Structure</td>
</tr>
<tr>
<td>(In Lab)</td>
<td>2. Units of Measure</td>
<td>(In Lab)</td>
<td>11 Periodic Properties</td>
</tr>
<tr>
<td></td>
<td>4. Stoichiometry</td>
<td></td>
<td>13. Covalent Bonding</td>
</tr>
<tr>
<td>(In Lab)</td>
<td>6. Molarity of Solutions</td>
<td>(In Lecture)</td>
<td>15. Properties of Solutions</td>
</tr>
<tr>
<td></td>
<td>7. Properties of Gases</td>
<td></td>
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<tr>
<td></td>
<td>8. Thermodynamics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Oxidation Reaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nomenclature Assignments

Week 1: 08/28 – 08/31: Cations: Course Notes p. 13-14, V and VI
Week 3: 09/10 – 09/14: Anions: Course Notes p. 15, VII; CO₃²⁻ – HS⁻
Week 4: 09/17 – 09/21: Acids and Bases: Course Notes p. 16-18, VIII
Problem Assignments for Chang (7th Edition)
(Not to be collected)

Chapter 1: 12, 16, 22, 24b, 26c, 34, 38, 42, 52, 54, 74, 86

Chapter 2: 1 – 5, 16, 18, 34, 42, 60, 68, 74

Chapter 3: 6, 14, 20, 24a, c, e, 28, 30, 40, 44, 46, 58a, c, f, i, k, 62, 64, 68, 76, 82, 86, 90, 94, 96, 110, 116, 128

Chapter 4: 8, 18, 30, 40, 46, 58, 60c, 66, 68, 70, 74, 80, 84, 98, 104, 126, 132

Chapter 5: 14, 18, 22, 24, 30, 32, 36, 40, 42, 44, 46, 48, 50, 54, 60, 72, 82, 84, 86, 94, 96, 100, 104, 112, 124

Chapter 6: 18, 20, 22, 32, 36, 38, 40, 44, 46, 48, 64, 70, 74, 78, 80, 82, 84, 96, 100, 110

Chapter 7: 8, 16, 20, 30, 32, 34, 40, 54, 56, 64, 68, 80, 82, 84, 86, 96, 104, 108, 114, 120

Chapter 8: 20, 22, 26, 28b, e, f, g, h, 32, 38, 40, 44, 52, 54, 56, 60, 74, 76, 80, 88, 92, 110, 112, 114, 116, 122, 124, 126

Chapter 9: 36, 40, 44, 46, 52, 54, 62, 74, 84a, c, d, 88, 90, 96, 100c, d, 104, 120a

Chapter 10: 18, 32, 34, 36, 38, 40, 42, 70, 72, 74, 76, 78, 80, 84

Chapter 11: 10, 12, 16, 18, 32, 42, 44, 48, 78, 84, 86, 94, 102, 108, 110, 112, 122, 124, 128, 132, 134

Chapter 12: 10, 16a, 18, 24, 28, 36, 38, 52, 54, 58, 60, 68, 76, 78, 80, 88, 98, 102, 112, 114, 116, 118, 120

NOTE: If you feel you need to work more problems to master the material, please feel free to do so!
Two Ways to Launch the Program

| Click on Start | OR | On Desktop |

NOTE: Read entire page before starting!

Getting Started with Chem Skill Builder – C103

1. Place your full name and section number on your record keeping disk on a label.

2. Place your record keeping disk in the A drive and your CD into the computer.

3. Click on the start button followed by the run button and this will open up a dialogue box. Type the following into the box: D:\chemskil then click on ok. This will launch your program.

4. When the menu comes up, select Main Menu then select Introduction/Registration.

   The following should appear:
   
   First Name _______________ ** Once you register your disk,
   Middle Initial _______________ ** these 4 spaces cannot be
   Last Name _______________ ** changes.
   Student ID# (Social Security number with no spaces)**
   Course Number 103
   Section Numbers XXX

   If you are in section 10 uses 010 if you are in section 11, 011 etc.

5. This will complete the registration sequence.

6. Make a backup copy of your disk.

   NOTE: It is important to make a back up disk for your Chem Skill Builder. Occasionally a disk will crash, if you do not have a back-up, you will lose all the work you have previously done.

Alternate Method to Open Chem Skill Builder:
After Step 2 above:

1. On Desktop, open My Computer (double click)
2. In My Computer, open CD Drive
3. In CD box, find folder that says Chemskil and open
4. Go to Main Menu, then Introduction/Registration and register you disk.
How to Make a Back-Up Copy of Record Keeping Disk

1. Insert Skill Builder floppy in A drive.
2. On desktop, open My Computer.
4. Copy files in A drive to the desktop. (Drag to desktop)
5. Remove Record Keeping Disk from the A drive and insert a blank disk.
6. Reopen A drive.
7. Copy files from desktop to drive. (Drag to A drive)
8. You now have a back-up record keeping disk.
9. Open Chemskil using back-up disk to make sure it works.

Using the Back-Up Disk

When you are using the Chem Skill Builder save the data to your original disk as usual. When the data has been saved, exchange the original disk with your back-up disk and save your information again. Now you have a back-up of your data.
MATH SKILLS QUIZ

Name _________________________________________________
Lab Section # ___________________________________________

Place all answers in the spaces provided below, using the back of the sheet if needed.

_____ 1. A gallon of milk weighs 8 pounds. How many gallons are there in a milk can which contains 140 pounds of milk?

_____ 2. \( \frac{75}{x} = \frac{1.49}{4} \) What is X?

_____ 3. \( \frac{1}{10} \times 25 = \frac{k}{8} \) What is 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 10.5 tons. What is the total weight of the loaded train cars if 18 trucks were unloaded?

_____ 6. \( \frac{x}{3} = Y \) and \( 1(10.5)Y = Z \) If X = 21, what is Z?

_____ 7. Three oranges and two apples are required for each fruit basket. How many complete fruit baskets can be made if we have nine dozen oranges and eight dozen apples?

_____ 8. Dunkin Donuts sells 200 dozen doughnuts every day. How many individual doughnuts do they sell each hour?

_____ 9. Initially, there is _ cup sugar in 1 quart of applesauce, but then 2 quarts of unsweetened applesauce are added. What is the final concentration of sugar per quart of applesauce.

_____ 10. \( \frac{6}{4Y} = \frac{X}{Y} \) If Y = 4, what is X?