CHEM 32: INTRODUCTION TO CHEMISTRY  
Spring 2013  
Chem 32C (11180) and ZRC (14402), TR 4:00 - 5:15 pm, Angell B-106

1. GENERAL INFORMATION:

A. LECTURE:

Lecturer: John Sharp  
Office: A-234 Cook  
E-Mail: John.Sharp@uvm.edu.

Office Hours: T-Th 1:30-3:30 and 5:30-6:15 or by appointment

Lecture:  
The lecture will cover the material assigned at the end of this syllabus in the tentative lecture section. Attendance at lecture is not mandatory. If you do come please stay through the lecture and refrain from talking to other students.

Exams:  
Exams are schedule for Wed nights from 6:15 - 9:15 pm in MLS 235. There are no make up dates. As only 3 out of the four exams given are used to determine your grade a missed exam is the grade that is dropped.

While taking an exam only non-programable calculators are permitted. No other electronic devices are allowed (i.e. no cell phones, mp-3 players, ipods etc). If you wish to use a calculator during an exam it is the responsibility of the student to bring a non-programable calculator to the exam. Students caught using any electronic device other then a non-programable calculator will receive a zero for the exam.

Listed below are the scheduled exam dates

Ex-1  Wed, 6 FEB  Ch: 4(sec .4-.7), all 12, 13  
Ex-2  Wed, 13 MAR  Ch: sec 4.8, all of 14, 15  
Ex-3  Wed, 3 APR  Ch: all 16,17  
Ex-4  Wed, 24 APR  Ch: sec 4.9, all of 18, 19  
Final  Tues, 7 MAY  Comprehensive (4:30-7:15 in Angell B 106)

Review Sessions: week of exam only, Sun 4:30 pm Angell B112,

Problems: Answers to the review questions and exercises are in the solutions manual. While it is strongly recommended that you do as many problems as possible, the problems are not collected and do not count towards your grade.

B. SUGGESTED READING:

Text: "Chemistry, A Molecular Approach" by Nivaldo Tro, special edition for UVM, is sold at the UVM bookstore. The solutions manual that comes with the text has the complete solutions to all the assigned problems. The study guide while not required can be a help with problem solving.
The course ID# for Mastering Chemistry is SHARPSPRING2013

Lab Manual:

"Chemistry 32, A Lab Manual", sold at first floor stockroom, A-143 Cook, for $15.00

Notes & Old Tests:

Available on Blackboard

C. LABORATORY:

TA: TBA

Time:
As scheduled

Lab Videos:
Prior to the attending a lab session it is mandatory to watch the video that accompanies that lab. The videos demonstrate the proper use of new equipment, and the safe handling of chemicals. The videos are found at
http://www.uvm.edu/~chem/courses/?Page=32Videos.html

Attendance:
Students must attend the lab section they are assigned to. Official documentation of sickness or family crisis is required if a lab is missed. Unexcused absences will result in a ZERO grade for that laboratory experiment. In order to take a lab at a time other then your assigned time you must obtain the permission of the instructor a week in advance. If for any reason more than two labs are missed you will receive an F for the course unless your dean grants you an incomplete.

Breakage Card:
A breakage card ( $40.00 ) must be purchased from the first floor stockroom, A-143 Cook, prior to your first lab. It is advisable to purchase this card as soon as possible in order to avoid having to wait in a line. The $40.00 is refundable if you are careful and avoid breaking your equipment. Remember don't leave home without it as it is required in order to be admitted into lab.

Safety eye wear:
OSHA approved safety glasses or goggles must be worn by everyone once any experimentation has started in any area of a lab room. Students not observing this rule will receive a ZERO for that experiment, warnings will not be given. Safety eye wear can be purchased at the UVM bookstore.

CONTACT LENSES are a potential hazard and should only be worn in the laboratory if you have no other type of corrective lenses. If you wear contact lenses you must wear goggles, and be sure to inform your TA that you are wearing contacts.
**Foot Wear:** Only shoes that cover the toes are permitted in the lab. Sandals and open toed shoes are not permitted

**Lab Notebook:** A notebook with carbon-less copies must used to record data taken in the lab. All data must be recorded in ink at the time the data is generated.

**D. COURSE GRADE:**

Total Points = 1000  (800 class + 200 lab)

1. Points needed to obtain a specific grade

\[
\begin{align*}
A & \geq 910 & B+ & \geq 860 & B- & \geq 780 & C & \geq 650 & D+ & \geq 600 & D- & \geq 540 \\
A- & \geq 890 & B & \geq 800 & C+ & \geq 740 & C- & \geq 630 & D & \geq 560 & F & \leq 539
\end{align*}
\]

2. How to calculate your points

a) **Class** = 800pts

- 4 hr Exams = 4 grades
- 1 Final = 2 grades

\[\text{6 grades - 1 grade} = 5 \text{ grades} \times 1.6 = \text{class pts}\]

Only five grades are counted. If the final is your lowest grade it only counts once. If an hour exam is your lowest grade then one of the grades for the final will replace that low exam grade. The 1.6 factor is because each test was only worth 100 pts, and therefore the maximum number of points obtainable from the tests are 500. In order to raise this to 800 pts you must multiply the 500 x 1.6 = 800.

**An option to taking the final:**

You may elect not to take the final and use your lowest exam score as the score on the final. You must let me know before you take the final exam if you wish to exercise this option. Once you start taking the final exam it will be counted.

b) **Laboratory** = 200 pts

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notebook / Prelab</td>
<td>18 pts</td>
</tr>
<tr>
<td>Lab reports</td>
<td>110 pts</td>
</tr>
<tr>
<td>Quizzes</td>
<td>72 pts</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200 pts</strong></td>
</tr>
</tbody>
</table>

Obtained from lab TA, average grade is normally an 80% or 160 pts

**Absences:**
Official documentation of sickness or family crisis is required if exams are missed. Unexcused absences from exams will result in a ZERO grade on your record. With that said, please contact me any time you have trouble making an exam to discuss your options.

Example 1:

<table>
<thead>
<tr>
<th>Actual Scores</th>
<th>Ex-1</th>
<th>Ex-2</th>
<th>Ex-3</th>
<th>Ex-4</th>
<th>Final x 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>85</td>
<td>45</td>
<td>78</td>
<td>77</td>
<td>80</td>
</tr>
<tr>
<td>Scores Counted</td>
<td>85</td>
<td>80</td>
<td>78</td>
<td>77</td>
<td>80</td>
</tr>
</tbody>
</table>

Total pts = 390 x 1.6 = 624 pts from class

Example 2:

<table>
<thead>
<tr>
<th>Actual Scores</th>
<th>Ex-1</th>
<th>Ex-2</th>
<th>Ex-3</th>
<th>Ex-4</th>
<th>Final x 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>67</td>
<td>78</td>
<td>76</td>
<td>69</td>
<td>62</td>
</tr>
<tr>
<td>Scores Counted</td>
<td>67</td>
<td>78</td>
<td>76</td>
<td>69</td>
<td>62</td>
</tr>
</tbody>
</table>

Total pts = 352 x 1.6 = 563 pts from class

3. Determination of grade.

Add up your points from the class and lab and then use the chart at the beginning to determine your course grade.

Example 1:  

\[
\begin{align*}
\text{Example 1:} & \quad 640 \text{ class pts} \\
& + 160 \text{ lab pts} \\
& = 800 \text{ total pts} = B
\end{align*}
\]

Example 2:  

\[
\begin{align*}
\text{Example 2:} & \quad 563 \text{ class pts} \\
& + 160 \text{ lab pts} \\
& = 723 \text{ total pts} = C
\end{align*}
\]

2. TENTATIVE LABORATORY SCHEDULE

<table>
<thead>
<tr>
<th>DATE</th>
<th>EXPERIMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 - 31 JAN</td>
<td>Molar Mass from Freezing Point Depression</td>
</tr>
<tr>
<td>4 - 7 FEB</td>
<td>Iodination of Cyclohexanone</td>
</tr>
<tr>
<td>11 - 14 FEB</td>
<td>Keq of FeSCN^2</td>
</tr>
<tr>
<td>18 - 21 FEB</td>
<td>Presidents Day - No Lab</td>
</tr>
</tbody>
</table>
25 - 28 FEB  Acid Neut. Pot. Anti-Acids
4 - 7  MAR  **Spring Break** - No Lab
11 -14 MAR  Acid-base Equilibria and Buffers
18 - 21 MAR  $K_p$ of Copper (II) tartrate
25 - 28 MAR  Thermodynamics of the Dissolution of Borax
1 - 4 APR  Oxidizing Power of Bleaches
8 - 11 APR  Potentiometric Det. of Ka
15 - 18 APR  Electrolysis/Electroplating
Check-out

3. TENTATIVE LECTURER SCHEDULE

<table>
<thead>
<tr>
<th>DATE</th>
<th>CHAPTER(section)</th>
<th>SUGGESTED PROBLEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 17 JAN</td>
<td>Review Sections 4.4 - 4.7</td>
<td>Ch12 - 6,8,10,12,13,14,18,21,25,31,33,35,39,42,43,47,49,51,54,57,61,63,70,71,73,75,78,80,83,86,89,92,93,96,99,101,106,108,115</td>
</tr>
<tr>
<td>22 JAN</td>
<td>Finish 12</td>
<td>Ch13 - 3,6,9,12,14,19,23,25,27,30,33,39,41,43,45,47,51,53,55,57,59,61,64,67,72,75,79,81,85,87,90,94,97,104,108</td>
</tr>
<tr>
<td>24 JAN - 5 FEB</td>
<td>Finish 13</td>
<td></td>
</tr>
<tr>
<td>6 FEB</td>
<td><strong>TEST 1:</strong> Sections 4.4 - 4.7, all of 12, 13</td>
<td>Ch14- 4,8,12,14,21,23,27,29,31,33,37,40,43,46,52,55,58,61,63,69,71,75,77,79,81,84,86,89</td>
</tr>
<tr>
<td>7 - 14 FEB</td>
<td>14 All</td>
<td>Ch15 - 5,6,9,10,13,19,23,33,35,37,39,42,46,49,55,57,61,65,67,69,71,74,77,82,85,87,89,91,93,97,104,110,111,115,117,120,123</td>
</tr>
<tr>
<td>19 FEB</td>
<td>Review Section 4.8</td>
<td>Ch15 -</td>
</tr>
<tr>
<td>15 All</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Start 15, will cover theory presented in sec 15.1- 15.4 and 15.10 first
23 - 28 FEB    15

4 - 7 MAR   OFF - SPRING BREAK

12 MAR   Finish 15

13 MAR   TEST 2:  sec 4.8, all of 14, 15

14 MAR   16 All   Ch 16 -  2,4,6,11,12,14,19,21,29,31,34,41,45,47, 
             49,51,53,55,57,59,63,65,71,74,76,80,82, 
             87,89,91,94,97,99,100,103,107,110 
             111,114,117,120,123,126,130,134

19 - 21 MAR  Finish 16
             17 All   CH 17 -  7,9,12,16,23,26,27,31,33,37,39,41,44,47, 
                       49,51,55,57,59,61,63,65,67,71,73,77, 
                       79,82,85,87,88,93,98

26 - 2 APR  Finish 17

3 APR   TEST 3:  all of 16 ,17

4 - 11 APR  Review Section 4.9
             18 All   Ch 18 -  4,5,6,9,13,17,18,19,30,34,39,41,43,45, 
                       47,49,51,53,57,61,63,65,67,71,73, 
                       75,77,79,82,86,88,93,96,99,102, 
                       103,109,113,117,121,123

16 - 23 APR  19 All   Ch 19 -  4 - 11,14,17,21,28,31,33,35,41,43, 
                       45,49,51,53,55,57,63,67,69,71, 
                       77,79,82,88,91,95,98,99,103

24 APR   TEST 4: Section 4.9, all of 18, 19

25 - 30 APR  Review

? MAY   Final - Cumulative   4:30-7:15 in Angell B106