CHEM 1471  
Course Reference Number 10276  
Procedures and Policy  
Spring 2010  
Dr. Buckley

Class Meetings:  
August 24 – November 30, 2010  
2:00 – 3:50, Tuesday  
Sciences Complex, SC 221  
Final Exam:  Tuesday, December 14, 2:45 – 4:45

Textbook:  

Course Objectives:  
- Reinforce concepts discussed in class through hands-on experimentation  
- Become competent recorders of experimental information  
- Become competent interpreters of experimental information  
- Develop the ability to work independently on an identification problem  
- Become familiar with the use of a simple computer spreadsheet for graphing and simple data analysis

Grading Procedure:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prelabs (13 @ 10 points)</td>
<td>130</td>
</tr>
<tr>
<td>Lab Record and Post Lab (13 @ 40)</td>
<td>520</td>
</tr>
<tr>
<td>Final Exam</td>
<td>80</td>
</tr>
<tr>
<td>Total Points</td>
<td>730</td>
</tr>
</tbody>
</table>

The grading scale will be:  A (657 - 730); B (584 - 656); C (511 - 583); D (438 - 510); and F (< 438).  
There is one other section of CHEM 1471 running during the week (R, 2:00 – 3:50).  
If you are unable to attend our lab, arrangements may be made to attend the other section that is conducting the same experiment you would miss.  
These arrangements must be made in advance so please contact me early if you know you will miss a lab.  
The low lab score of Experiments 2 – 8, 14 will be dropped.  
There may be some changes in experiment during the semester – you will be advised ahead of time.

Description of Graded Components:  
Prelabs are administered through Mastering Chemistry and one prelab is due at 11:00 AM on Tuesday every week – even in the second week of two-week experiments.  
You may use your course login to register for this course also – no extra charge.  
The course ID required for accessing the course is:  BUCKLEYCHEM1471TUESDAY

Lab Reports and Post Lab – There are various combinations of Laboratory Records and Post Labs with each experiment.  
All paperwork following the experiment will be completed and turned in at the start of the next lab period.  
No late Laboratory Records/Post Labs will be accepted.
### Instructor Information:
Dr. Gary Buckley  
Office: Room 225F Sciences Complex  
Phone: 580-581-2885  
e-mail: gbuckley@cameron.edu

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Office (-9:00)</td>
<td>Office (-9:00)</td>
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<td>Office (-9:00)</td>
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<tr>
<td>9:30</td>
<td>CHEM 1474</td>
<td>CHEM 1474</td>
<td>CHEM 1474</td>
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<td>Virtual Office Hour (CHEM 1474)</td>
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<td>10:30</td>
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<td>Virtual Office Hour (CHEM 1004)</td>
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<tr>
<td>11:00</td>
<td>CHEM 1004</td>
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<tr>
<td>12:00</td>
<td>Tutorial Lab</td>
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<td>1:00</td>
<td>Virtual Office Hour (CHEM 1004)</td>
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<td>Virtual Office Hour (CHEM 1474)</td>
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<td>Meetings, Research, Occasional Recreation</td>
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<tr>
<td>2:00</td>
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<td>CHEM 1471</td>
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<td>Meetings, Research, Occasional Recreation</td>
<td>CHEM 1471</td>
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<tr>
<td>3:00</td>
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<td>4:00</td>
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<td>5:00</td>
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<td>CHEM 1361 (5:00 – 6:50)</td>
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</tbody>
</table>

Please feel free to ask any questions you wish. Office hours are not exclusive times I will visit with you. I am on campus quite a bit – feel free to come to my office if you have questions at any time. I may need to alter the office hours a little but will let you know if that is going to happen.

*It is the policy of Cameron University to accommodate students with disabilities, pursuant to federal and state law. Students with disabilities who need classroom accommodations must make their requests by contacting the Office of Student Development at (580) 581-2209, North Shepler Room 314.*
<table>
<thead>
<tr>
<th>Date</th>
<th>Exp. #</th>
<th>Title</th>
<th>Skill Set</th>
<th>Textbook Reference (Brown, LeMay, Bursten, 11&quot; Edition)</th>
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</thead>
<tbody>
<tr>
<td>8/24</td>
<td>1</td>
<td>Laboratory Safety</td>
<td>Recall of lab safety issues from General Chemistry I Labs</td>
<td></td>
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</tbody>
</table>
| 8/31  | 3      | Separation of Ions by Paper Chromatography       | Separate mixtures based on affinity for solvents and adsorption to solid substrate  
Properties of Matter (1.3) |
| 9/07  | 6      | Determination of the Mass Percentage of Sodium Hypochlorite in a Sample of Household Bleach | Work with the definition of molarity, work titration problems  
Concentrations of Solutions (4.5)  
Solution Stoichiometry and Chemical Analysis (4.6) |
| 9/14  | 2      | Melting Point Depression: Determining the Molar Mass of an Unknown Solute | Use expression for lowering of freezing point to find missing information  
Colligative Properties (13.5) |
| 9/21  | 5      | Reactions of Acids with Common Substances        | Completing single displacement and metathesis reactions, writing net ionic equations  
Precipitation Reactions (4.2)  
Acid and Base Reactions (4.3)  
Oxidation-Reduction Reactions (4.4) |
| 9/28  | 4      | Rates of Chemical Reactions: A Clock Reaction   | Dilution calculations, Method of initial rates  
The Rate Law: The Effect of Concentration on Rate (14.3)  
The Change of Concentration with Time (14.4) |
| 10/05 | 7/8    | Determining the pKₐ of an Unknown Weak Acid     | Calculate pH at various points of an acid-base titration  
Use information from titration to evaluate mass of unknown acid  
Acid-Base Titrations (17.3) |
| 10/12 | 7/8    | Determining the pKₐ of an Unknown Weak Acid     |  |
| 10/19 | 9      | Group I: Separation and Identification of Pb(II), Hg(I), and Ag(I) Cations | Completing and balancing chemical equations  
Precipitation and Separation of Ions (17.6) |
| 10/26 | 10     | Group II: Separation and Identification of Sn(IV), Cd(II), Cu(II), and Bi(III) Cations | Completing and balancing chemical equations  
Precipitation and Separation of Ions (17.6) |
| 11/02 | 11     | Group III: Separation and Identification of Fe(II)/Fe(III), Ni(II), Cr(III), Ba(II), and Ca(II) Cations (Week 1) | Completing and balancing chemical equations  
Precipitation and Separation of Ions (17.6) |
| 11/09 | 11     | Group III: Separation and Identification of Fe(II)/Fe(III), Ni(II), Cr(III), Ba(II), and Ca(II) Cations (Week 2) | Completing and balancing chemical equations  
Precipitation and Separation of Ions (17.6) |
| 11/16 | 12/13  | Qualitative Analysis General Unknown            | Completing and balancing chemical equations  
Precipitation and Separation of Ions (17.6) |
| 11/23 |        | Thanksgiving Break – No lab though classes do meet Monday and Tuesday |  |
| 11/30 | 14     | Voltaic Cells and the Nernst Equation           | Writing half-reactions, balancing redox reactions, calculating cell potential for standard and nonstandard cells  
Balancing Oxidation-Reduction Equations (20.2)  
Voltaic Cells (20.3)  
Cell EMF Under Standard Conditions (20.4)  
Cell EMF Under Nonstandard Conditions (20.6) |
| 12/14 |        | Lab Final Exam, 2:45 – 4:45 pm                   |  |