CHM 3120L ANALYTICAL CHEMISTRY LABORATORY I
SPRING, 2014

Faculty Member:     Dr. V.Y. Young, , Flint 250, 392-6779, vanyoung@ufl.edu, Office Hours: M 8, T 6, W 6

Teaching Assistants:   Mr. Hrishkesh Bhase, hrishibhase@ufl.edu
Mr. Jared Boock, jboock@ufl.edu
Ms. Emily O’Neill (lab prep)
Ms. Yanglan Tan, tylif@ufl.edu
Ms. I-Ting Teng, (work quiz grader)

Web Site: [http://lss.at.ufl.edu](http://lss.at.ufl.edu)
Please visit the website regularly. Announcements, grades, video, etc., will be available at that site.

**Required Materials**

Laboratory Notebook: The spiral-bound version with pre-numbered duplicate pages. (To save money, you may substitute a regular class-type notebook. It must be a separate notebook, not just a section of a course notebook. You must prenumber the pages in duplicate, and provide the carbon paper. The TA must approve the notebook).
Proper Laboratory Attire: Long, loose-fitting pants, full shirt, shoes which cover the feet, departmentally-approved safety glasses, tie-back for long hair
Other Items: Graph paper ruled 10 boxes per cm; Laundry marking pen (if desired)

**Course Objectives**

CHM 3120L is an introductory laboratory course in Analytical Chemistry. By the end of the semester, students are expected to demonstrate:
- proper laboratory techniques for quantitative chemical measurements including accuracy on unknowns
- knowledge of a select group of analytical methods
- competence in data analysis and preparation of rudimentary reports

**Grading**

Your grade will be determined by the accuracy of your results, the quality of your reports, the instructor's subjective appraisal of your work, your competence in essential laboratory manipulations, and your performance on written quizzes.

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>2 (Exp II, Soda Ash; Exp III, Ascorbic Acid) @ 90 pts max</td>
<td>180 pts</td>
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<tr>
<td></td>
<td>1 (Exp V, ISE; @ 50 pts max)</td>
<td>50 pts</td>
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<tr>
<td></td>
<td>2 (Exp IV, Spec Fe; Exp VI, GC) @ 70 pts max (no accuracy grade for Exp I)</td>
<td>140 pts</td>
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<tr>
<td>Reports</td>
<td>5 @ 50 pts max</td>
<td>250 pts</td>
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<tr>
<td>Subjective</td>
<td>6 @ 10 pts max</td>
<td>60 pts</td>
</tr>
<tr>
<td>Practical Exams</td>
<td>4 @ 30 pts max</td>
<td>120 pts</td>
</tr>
<tr>
<td>Written Quizzes</td>
<td>4 @ 50 pts each</td>
<td>200 pts</td>
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<tr>
<td></td>
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<td>1000 pts max</td>
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At the end of the semester the total for each student will be calculated. The minimum A grade is 860 pts. Other grades will be determined from a curve involving all students in all sections of CHM 3120L. The faculty put forth considerable effort to ensure that grading is consistent among the sections. Borderline situations are now dealt with using the new “minus” grade system. Regrade requests for old work at the end of the semester will not be granted.

**Notes:**

1) Prior to obtaining an unknown, you must write a purpose and complete procedure for that experiment in your laboratory notebook. (See Chapter 3 in the laboratory manual.)
2) A minimum of 40 out of 90 accuracy pts (30 out of 70, 20 out of 50) will be given, if the experiment is performed and the results are calculated correctly and submitted as required by the experiment.

3) For two of the experiments (Analytical Techniques and Ascorbic Acid) you will submit your laboratory results to the departmental computer network. See separate information sheet for details. Results must be submitted with correct calculations by the time and day specified on the schedule.

4) For five of the experiments (Soda Ash, Ascorbic Acid, Spec Iron, Ion Selective Electrodes, and Gas Chromatography) you will write laboratory reports. Reports are due at the beginning of your laboratory period during the week specified. (Note: The laboratory manual contains a series of questions for each experiment. These are designed to help you prepare for the written quizzes. Written answers are not required unless a question is specifically assigned.)

5) All laboratory data must be recorded in duplicate (original plus carbon) in the laboratory notebook. The carbon sheets must be submitted on the same day as the computer/report deadline (see attached schedule).

6) A 10 point penalty will be assessed each time a set of results (report or computer) is submitted late. The maximum permissible late time is one week. For reports/results not submitted within one week of the time due, zero points-Accuracy, Subjective (and Report, if applicable) will be given for that experiment. Lab report regrades must be submitted in writing along with the report to Dr. Young within 3 days after the report is returned. The absolute deadline for submission of results is Thursday, 4/17/2014, at 8:30 AM. NOTE: Computer down-time will not usually be considered a reason for extension of a due date. It is your responsibility to submit results sufficiently in advance of the time due.

7) Each student is expected to pass laboratory practical exams on four essential analytical skills (use of the analytical balance/weighing by difference, quantitative transfer/use of a volumetric flask, use of a pipet, and titration). The tests will be given by the TA or SA during the regular laboratory period at times mutually acceptable to both the student and the TA. The tests may be arranged starting week 2 of the semester and must be successfully completed in order to receive a passing grade in 3120L.

8) Four written quizzes will be given on the dates specified on the schedule. Study material will be posted one week in advance. (Note:DVD’s are available at the Marston Science Library Reserve Desk, and online at http://web.chem.ufl.edu/ugrad/analytical-lab) You will be allowed to see your graded written quiz, but it must be returned to the TA within the hour it is returned to you. Regrade requests should be written on a sheet of paper and attached to the quiz. The entire quiz will be regarded by Dr. Young, which could result in a higher, a lower or the same score. Illegible work that has been graded 0 will not be regraded. Any quiz removed from the lab will receive a grade of zero.

9) Attendance is required at all scheduled laboratory periods. Students who finish laboratory work ahead of schedule should stay in the lab to work on calculations and reports.

10) CHM 3120 is a co- or pre-requisite for CHM 3120L. If you drop 3120, you must obtain special permission from Dr. Young to continue in 3120L.

11) Once an unknown result has been submitted, no repeat work on that unknown is allowed.

12) Students are expected to obey the University of Florida Honor Code, detailed at www.chem.ufl.edu/~itl/honor.html. Violations will be reported to the Office of Student Judicial Affairs.

13) Make-ups will be granted only when justified. If you know ahead that you will have to miss lab, notify in advance your TA and Dr. Young to determine if a make-up is warranted. If you are sick and cannot reach anyone before lab, you will have to present written evidence of the illness from the infirmary, hospital, or physician.

14) If you are involved in a laboratory accident, you must go to the infirmary for treatment. Infirmary charges are your responsibility.

15) Students with disabilities will be provided with appropriate accommodations according to the policy at www.chem.ufl.edu/~itl/disabilities.html.
DATES             LAB WORK                                    QUIZZES        RESULTS DUE
M 1/6-R 1/9        **CHECK IN, **WATCH DVD’s                        
                  **LEARN TO USE BALANCE                      
                  **READ Chapters 1 through 5-F          
                  and Appendix 3 (at home)                   
                  **EXP 1                                   
M 1/13-R 1/16      **FINISH EXP 1                               
                  **PREPARE HCl & NaOH                           
                  HCl/NaOH TITRATIONS                           
†M 1/20-R 1/23     **DRY SODA ASH                                  
                  **HCl/NaOH TITRATIONS                         
                  **KHP/NaOH TITRATIONS                         
                  ** DEADLINE FOR WEIGHING PRACTICAL          
M 1/27 – R 1/30    ** FINISH SODA ASH EXP                        
                  **WATCH ASCORBIC ACID DVD                    
                  ** PREPARE KIO₃ & Na₂S₂O₃                   
                  STANDARDIZE Na₂S₂O₃                          
M 2/3 – R 2/6      **STANDARDIZE Na₂S₂O₃                         
                  ** ASCORBIC ACID TITRATIONS                   
                  ** DEADLINE FOR TITRATION PRACTICAL         
M 2/10 – R 2/13    ** ASCORBIC ACID TITRATIONS                  
                  WATCH SPEC Fe DVD                            
                  PREPARE SPEC Fe SOLUTIONS                     
M 2/17 – R 2/20    ** FINISH ASCORBIC ACID                        
                  ** WATCH SPEC Fe DVD                          
                  SPEC Fe EXP                                  
M 2/24 – R 2/27    ** SPEC Fe EXP                               
                  ** DEADLINE FOR VOL FLASK PRACTICAL          
M 3/3 – R 3/6      SPRING BREAK                                 
M 3/10 – R 3/13    **WATCH ISE DVD                               
                  ** ISE EXP                                  
M 3/17 – R 3/20    ** FINISH ISE EXP                             
                  ** DEADLINE FOR PIPETTING PRACTICAL           
                  ** WATCH GC DVD, ** PREPARE GC VIALS         
M 3/24 – R 3/27    ** GC EXP (Group 1)                           
                  ** DEADLINE FOR PIPETTING PRACTICAL           
                  ** WATCH GC DVD, ** PREPARE GC VIALS         
M 3/31 – R 4/3     ** GC EXP (Group 2)                           
M 4/7 – R 4/10     ** COURSE EVALUATIONS                         
                  ** CHECK OUT                                 
                  EXP 1 (Pipet calibration due in the computer by 8AM on the day of lab. Carbon sheets due at the start of the lab.)
NOTE: Late ascorbic acid reports are due the week of Spring Break. Prepare accordingly.
The schedule is tentative, and subject to change. It is your responsibility to keep up with changes, which will be announced by your TA and posted at the web site.
† Make up labs will be scheduled to compensate for the MLK holiday.