

**CHM 3120L ANALYTICAL CHEMISTRY LABORATORY I**  
**FALL, 2011**

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Web Site: <http://lss.at.ufl.edu>, enter at SAKAI  
 Please visit the website regularly. Announcements, grades, video, etc., will be available at that site. Please acquaint yourself with this new site. Downloadable files (compute, outlines, etc.) are found in the folder labeled "Course Content", accessed by clicking on the "Resources" tool at the left of the page. The Videos and Auto titrator tutorial are accessed as tools at the left of the page.

**Required Materials**

Laboratory Manual: V. Young, Instructor: *Laboratory Manual for Introductory Analytical Chemistry, Fall, 2011* (available at Target Copy).  
 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 (bundled with the lab manual); 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.

Accuracy	2 (Exp II, Soda Ash; Exp III, Ascorbic Acid) @ 90 pts max	180 pts
	1 (Exp V, ISE; @ 50 pts max	50 pts
	2 (Exp IV, Spec Fe; Exp VI, GC) @ 70 pts max (no accuracy grade for Exp I)	140 pts
Reports	5 @ 50 pts max	250 pts
Subjective	6 @ 10 pts max	60 pts
Practical Exams	4 @ 30 pts max	120 pts
Written Quizzes	4 @ 50 pts each	<u>200 pts</u>
		1000 pts max

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.

Notes:

- 1) Prior to obtaining an unknown, you must write a purpose and complete procedure for that experiment in your laboratory notebook. (See Chapter III 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.
- 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.** The absolute deadline for submission of results is Thursday, 11/24/11, at 2 PM. 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://www.chem.ufl.edu/ugrad/labanalytical.shtml>)
- 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 the faculty supervisor (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](http://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 or 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](http://www.chem.ufl.edu/~itl/disabilities.html).

<u>DATES</u>	<u>LAB WORK</u>	<u>QUIZZES</u>	<u>RESULTS DUE</u>
M 8/22-Th 8/25	**CHECK IN, **WATCH DVD's **LEARN TO USE BALANCE **READ Chapters I through V-F and Appendix III (at home) **EXP I		
M 8/29-Th 9/1	**FINISH EXP I **PREPARE HCl & NaOH HCl/NaOH TITRATIONS		
†M9/5-Th 9/8	**DRY SODA ASH **HCl/NaOH TITRATIONS **KHP/NaOH TITRATIONS ** DEADLINE FOR WEIGHING PRACTICAL		EXP I (Pipet calibration due in the computer by 8AM on the day of lab. Carbon sheets due at the start of the lab.)
M 9/12 – Th 9/15	** FINISH SODA ASH EXP **WATCH ASCORBIC ACID DVD ** PREPARE KIO <sub>3</sub> & Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> STANDARDIZE Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	QUIZ 1	
M 9/19 – Th9/22	**STANDARDIZE Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> **ASCORBIC ACID TITRATIONS **DEADLINE FOR TITRATION PRACTICAL		SODA ASH (Report and carbon sheets due at the start of the laboratory period.)
M 9/26 – Th 9/29	**ASCORBIC ACID TITRATIONS WATCH SPEC Fe DVD PREPARE SPEC Fe SOLUTIONS		
M 10/3 – Th 10/06	**FINISH ASCORBIC ACID **WATCH SPEC Fe DVD SPEC Fe EXP	QUIZ 2	
M 10/10 – Th 10/13	**SPEC Fe EXP **DEADLINE FOR VOL FLASK PRACTICAL		ASCORBIC ACID (Due in computer by 8AM on the day of lab. Report And carbon sheets due at the start of the laboratory period.)
M 10/17 – Th 10/20	**ISE EXP		
M 10/24 – Th 10/27	**FINISH ISE EXP ** DEADLINE FOR PIPETTING PRACTICAL **WATCH GC DVD, **PREPARE GC VIALS	QUIZ 3	SPEC Fe (Report and carbon sheets due at the start of the laboratory period.)
M 10/31 – Th 11/03	** GC EXP (Group 1)		ISE (Report and carbon sheets due at the start of the laboratory period.)
M 11/07 – Th 11/10	** GC EXP (Group 2)		GC Group 1 (Report & carbon sheets due at the normal start of the laboratory period.)
M 11/14 – Th 11/17	**COURSE EVALUATIONS **CHECK OUT	QUIZ 4	GC Group 2 (Report & carbon sheets due the normal start of the laboratory period.)

† Make up labs will be scheduled to compensate for the Labor Day holiday.