Syllabus

CHM 3120L ANALYTICAL CHEMISTRY LABORATORY

Spring 2020

Faculty Instructor: Dr. Alexander Jacobs, Leigh 202A
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If the door to my office is open, please come on in
You can also email me for an appointment

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Course Website: Canvas; Please visit the website regularly for announcements and resources. Everything is posted under "Files"
Videos available at: https://www.chem.ufl.edu/undergraduate/courses-and-curriculum/chemistry-laboratories/analytical/

Required Materials

Laboratory Manual: No lab manual is required. All materials will be posted on the e-learning site, under Files.

Laboratory Notebook: Any sensible laboratory notebook, to be used only for this lab, is suitable. You will turn in either carbon copies, or scans or Xerox copies of your notes, retaining the original notebook for your own use. Please be sure that what you submit is legible and clear.

Laboratory Attire: The Essentials: Long, loose-fitting pants, full shirt, shoes which cover the feet, departmentally-approved safety glasses, tie-back for long hair.

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
- learning the basics of laboratory report writing, figure making and data interpretation

Grading

Your grade will be determined by the accuracy of your results, the quality of your reports, the quality of your laboratory notes, your competence in essential laboratory manipulations, and your performance on written quizzes. Grades will be posted in the Canvas gradebook.

Accuracy	6 @ 35 points	210
Questions, Reports and Notes	7 @ 70 points	490
Practical Exams	3 @ 40 points	120
Written Quizzes	4 @ 45 points	180
		1000 total

The following grading scale will be used:

Letter Grade	Percentage	Letter Grade	Percentage	Letter Grade	Percentage
A	≥93	B-	≥80	D+	≥67
A-	≥90	C+	≥77	D	≥64
B+	≥87	C	≥73	E	<60
B	≥83	C-	≥70		

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There may be a curve, there may not be a curve.

Notes:

1) Prior to the first lab, visit the e-learning site and review Preliminary Handouts 1-3, 5: laboratory safety, basic lab rules, laboratory notebook, and fundamental techniques. Also read the handout for Experiment #1.

2) A minimum of 18 out of 35 accuracy points will be given if the experiment is performed, the results are calculated correctly and deadlines are met.

3) At the beginning of the semester, each lab will be accompanied by questions at the end of the lab and your results, tabulated and presented nicely. Starting with lab 2, you will be asked to write a section of a lab report (Intro, Experimental, Results and Discussion and Conclusion) with each lab. By lab 6, you will be only writing lab reports. More details will be given about each section as the semester goes on. There are some examples of lab reports on Canvas.

4) A 10% penalty off the final score of the report will be assessed each time a result or report is submitted late. The maximum permissible late time is one week.

5) Each student is expected to pass laboratory practical exams on three essential analytical skills (use of the analytical balance/weighing by difference, quantitative transfer/use of a volumetric flask and use of a pipets). The tests will be given by the TA during the regular laboratory period at times mutually acceptable to both the student and the TA.

6) Four written quizzes will be given on the dates specified on the schedule. You will be allowed to see your graded written quiz, but it must be returned to the TA before leaving lab. The questions in your lab write ups will greatly help you prepare for the quizzes.

7) Attendance is required at all scheduled laboratory periods, unless you are informed otherwise by your TA or the instructor.

8) Students will work in pairs for most labs. Each pair will prep their standards. Each student in a pair will determine their own unknown. Once an unknown result has been submitted, no repeat work on that unknown is allowed.

9) Plagiarism will not be tolerated. Students are expected to obey the University of Florida Honor Code, detailed at https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/.

10) Make-ups will be granted only when justified. If you know ahead that you will have to miss lab, notify your TA and Dr. Jacobs in advance. If you are sick and cannot reach anyone before lab, you will have to present written evidence of the illness.

11) If you are involved in a laboratory accident, you must go to the infirmary for treatment.

12) Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

Course Fees: You have already paid this, but the fee for this course is $45.00

Laboratory Schedule

Note: Note that the schedule may change due to weather

Dates (starting date)	Preparation	Lab Work	Quizzes	Results Due
Begin Jan 13th Week 1	Read Handouts 1-3,5,6 Read Experiment 1 Watch video: Lab Techniques	Check in Experiment 1 Balance use Pipet use/calibration		
Week 2 (Jan 27th)	Read Handout 7 Read Experiment 2	Prep KIO_3 and $Na_2S_2O_3$ Standardize $Na_2S_2O_3$		Experiment 1 results and lab notes
Week 3 (Feb 3rd)		Ascorbic acid titrations Finish lab 3	Quiz 1 and Deadline for Weighing Practical	
Week 4 (Feb 10th)	Read Experiment 3	Error Propagation with Beer's Law		Ascorbic Acid questions, results, Introduction and notes due
Week 5 (Feb 17th)	Read Experiment 4	Spectrophotometric Fe Practice with Excel		Beer's Law questions, results, Experimental and notes due
Week 6 (Feb 24th)		Finish Spec Fe	Quiz 2 Deadline for Pipetting Practical	
Week 7 (Mar 9th)	Read Experiment 5	Chloride Ion Selective Electrodes		Spec Fe questions, results, Results and Discussion and notes due
Week 8 (Mar 16th)	Read Experiment 6	Fluorescence of Quinine in Tonic water and cinchona bark; Standard additions	Quiz 3 Deadline for volumetric flask practical	ISE questions, results, Conclusion and lab notes due
Week 9 (Mar 23rd)	Read Experiment 7	Chromatography of Diet Soda/Excedrin/NoDoz		Quinine report and notes due
Week 10 (Mar 30th)		Finish Chromatography Lab		
Week 11 (Apr 6th)		Check out	Quiz 4	Chromatography report and notes due