

Syllabus

CHM 3120L ANALYTICAL CHEMISTRY LABORATORY

Fall 2021

Faculty Instructor: Dr. Alexand Jacobs, Leigh 202A
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Simultaneously by Zoom ID: 882 880 7636 Password: Officehr

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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 scans or photos 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:

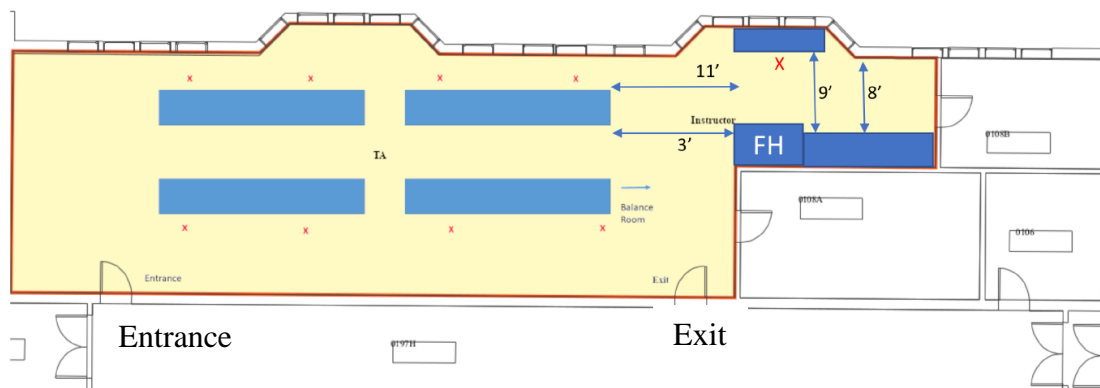
- proper laboratory techniques for quantitative chemical measurements including accuracy on unknowns
- knowledge of a select group of analytical methods
- competence in data analysis, statistics and preparation of professional laboratory reports

COVID-19 PPE

We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- **If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: <https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.**
- **You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.**
 - **Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.**
 - **Hand sanitizing stations will be located in every classroom.**
 - **You are required, at all times, to wear gloves and goggles. Gloves will be provided. Gloves will be disposed of when you leave the lab in the designated waste by the exit.**
- **If you sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.**
 - **Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.**
 - **If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.**
- **Continue to regularly visit coronavirus.UFHealth.org and coronavirus.ufl.edu for up-to-date information about COVID-19 and vaccination.**

You will enter through the door on the sound end of LEI 108 and exit from the door on the north end (see diagram below)



Plaza of the Americas on this side of Leigh Hall

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	8 @ 70 points	560
Practical Exams	3 @ 40 points	120
Written Quizzes	3 @ 45 points	<u>180</u>
		1070 total

The following grading scale will be used:

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

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) You will need to bring a copy of the lab experiments to your lab period. This can be done with either a print out, on a tablet or a laptop. It is advised not to use your phone.
- 3) On the first day, you select a workstation. This is where you will complete your experiments. Everything you will need will be at that station.
- 4) 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.
- 5) For labs 1-5, there will be questions at the end of the lab handout. You will turn in the answers to these questions and calculations along with 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. For lab 6 and 7, you will be writing a full lab report. More details will be given about each section as the semester goes on. There are some

examples of lab reports on Canvas. Videos covering scientific writing will be posted to Canvas.

- 6) Lab reports and answers to questions must be typed. By lab 2, all calculations must be shown through Microsoft Equation Editor.
- 7) A copy of your lab notes must be submitted with your reports.
- 8) Lab reports are due at the specified time on Canvas for your section
- 9) 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.
- 10) 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.
- 11) Three written quizzes will be given on the dates specified on the schedule. Quizzes will be given on Canvas. They are open note, but you must work alone. If you wish to go over your quiz, please contact your TA. The questions in your lab write ups will greatly help you prepare for the quizzes.
- 12) Attendance is required at all scheduled laboratory periods, unless you are informed otherwise by your TA or the instructor.
- 13) Plagiarism will not be tolerated. Students are expected to obey the University of Florida Honor Code, detailed at

The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructors or TAs in this class.
The sale or transfer of graded or ungraded course materials to another student for use in this course (current or future semesters) is in violation of the Honor Code. All violations will be reported.
- 14) 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. **If you are not feeling well, do not come to lab.**
- 15) If you are involved in a laboratory accident, you must go to the infirmary for treatment.
- 16) 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/holidays/pandemic

Dates (starting date)	Preparation	Lab Work	Quizzes	Assignment Due
Begin Aug 23rd		No lab (add/drop week)		
Week 2 (week of Aug 30)	Read Handouts 1-6 Read Experiment 1 Watch video: Lab Techniques	Check in Experiment 1 Balance use Pipet use/calibration		
Week 3 (week of Sept 6 th)		No lab due to Labor Day		
Week 4, (week of Sept 13 th)	Read Handout 7 Read Experiment 2	Begin Soda Ash Titrations HCl/NaOH titrations		Experiment 1 results and lab notes
Week 5 (week of Sept 20 th)	Review handouts to prepare for Quiz 1	KHP/NaOH titrations Finish Soda Ash	Quiz 1 and Deadline for Weighing Practical	
Week 6 (week of Sept 27 th)		Beer's Law measurement		Soda Ash questions, results, <u>Introduction</u> and notes due
Week 7 (week of Oct 4 th)	Read Experiment 4 Watch Spec Fe video	Spectrophotometric Fe		Beer's Law questions, results, <u>Experimental</u> and notes due
Week 8 (week of Oct 11 th)		Spectrophotometric Fe Finish Lab 4	Quiz 2 Deadline for Pipetting Practical	
Week 9, (week of Oct 18 th)	Read Experiment 5 Watch ISE video	Chloride Ion Selective Electrodes		Spec Fe questions, results, <u>Results and Discussion</u> and notes due
Week 10 (week of Oct 25 th)	Read Experiment 6	Fluorescence of Quinine; Standard additions and Determination of quinine in cinchona bark		ISE questions, results, <u>Conclusion</u> and lab notes due
Week 11 (week of Nov 1 st)	No in person lab this week	At home Chromatography assignment		Quinine in tonic water report and notes due
Week 12 (week of Nov 8 th)	Read Experiment 7 (No Thursday Labs due to Veterans Day)	Chromatography of Soda	Quiz 3 Deadline for volumetric flask practical	At home Chromatography assignment
Week 13 (week of Nov 15 th)	Thursday Labs complete full lab 7	Finish Soda Lab		
Week 14 (week of Nov 22 nd)		No lab due to Thanksgiving		
Week 15 (week of Nov 29 th)				Chromatography of Soda report and notes due