

# Syllabus

## CHM 3120L ANALYTICAL CHEMISTRY LABORATORY

### Summer 2021

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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

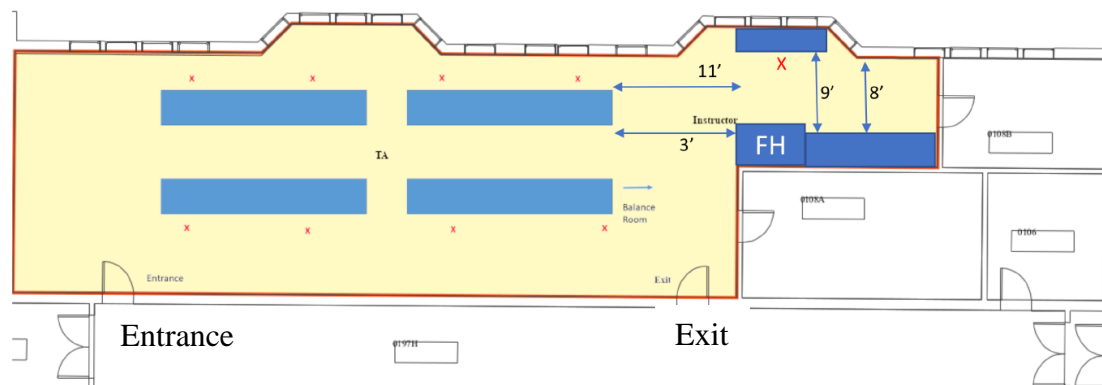
CHM 3120L is an introductory laboratory course in Analytical Chemistry. By the end of the semester, students are expected to demonstrate:

- 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 policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions:

You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct

and Conflict Resolution. 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. No materials can leave the lab. That means notebooks, pens, calculators, etc. must remain in the lab. Your phone can be used to take pictures of your notes. Disinfecting wipes will be provided to clean your phones and workstation before you leave. You will enter through the door on the south 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	5 @ 35 points	175
Questions, Reports and Notes	6 @ 70 points	420
Practical Exams	3 @ 40 points	120
Written Quizzes	3 @ 45 points	135
		850 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		

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) On the first day, you will be assigned a work station. This is where you will complete your experiments. Everything you will need will be at that station.
- 3) Remember the rule of 6. There should always be at least 6 floor tiles between you and someone else. The tiles are 12"x12", so 6 tiles is 6 feet apart. The benches are 5 ft long on the short side, please keep this in mind.
- 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, 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.
  - a) If you are experiencing COVID-19 symptoms ([Click here for guidance from the CDC on symptoms of coronavirus](#)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. [Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms.](#)
  - b) 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. [Find more information in the university attendance policies.](#)
- 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	Results Due
<b>Begin May 10<sup>th</sup>/May 11<sup>th</sup></b> Week 1		No lab (add/drop week)		
Week 2 (May 17 <sup>th</sup> /18 <sup>th</sup> )	Read Handouts 1-6 Read Experiment 1 Watch video: Lab Techniques	Check in Experiment 1 Balance use Pipet use/calibration		
Week 3 (May 24 <sup>th</sup> /25 <sup>th</sup> )	Read Handout 7 Read Experiment 2	Begin Soda Ash Titrations HCl/NaOH titrations		Experiment 1 results and lab notes
Week 4, week of May 31 <sup>st</sup>		No lab due to Memorial Day		
Week 5 (June 7 <sup>th</sup> /8 <sup>th</sup> )		KHP/NaOH titrations Finish Soda Ash	Quiz 1 and Deadline for Weighing Practical	
Week 6 (June 14 <sup>th</sup> /15 <sup>th</sup> )	Watch ascorbic acid video Read Experiment 3 Review handouts to prepare for Quiz 1	Prep KIO <sub>3</sub> and 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>		Soda Ash questions, results, <u>Introduction</u> and notes due
Week 7, week of June 21 <sup>st</sup>		No Lab, summer break		
Week 8 (June 28 <sup>th</sup> /June 29 <sup>th</sup> )		Ascorbic acid titrations Finish lab 3		
Week 9, week of July 5 <sup>th</sup>		No lab due to 4 <sup>th</sup> of July holiday		
Week 10 (July 12 <sup>th</sup> /13 <sup>th</sup> )	Read Experiment 4 Watch Spec Fe video	Spectrophotometric Fe	Quiz 2 Deadline for Pipetting Practical	Ascorbic Acid questions, results, <u>Experimental</u> and notes due
Week 11 (July 19 <sup>th</sup> /20 <sup>th</sup> )	Read Experiment 5 Watch ISE video	Chloride Ion Selective Electrodes		Spec Fe questions, results, <u>Results and Discussion</u> and notes due
Week 12 (July 26 <sup>th</sup> /27 <sup>th</sup> )	Read Experiment 6	Fluorescence of Quinine; Standard additions and Determination of quinine in cinchona bark	Quiz 3 Deadline for volumetric flask practical	ISE questions, results, <u>Conclusion</u> and lab notes due
Week 13 (August 2 <sup>nd</sup> /3 <sup>rd</sup> )		Check Out		Quinine in tonic water report and notes due