

**CHEM 3305-11A, Analytical Chemistry Lab**  
**Fall 2022 (M: 1:00 – 4:50 pm, Bolin 311, 323)**

**Instructor:** Dr. SHAO, J.

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**Lab Manual and Lab Notebook (with carbon pages):** available in the bookstore; required on the first lab day.

**Lab Coat:** available from the stockroom manager; mandatory.

<b>Date</b>	<b>Experiment</b>	<b>Exp-#</b>
Aug. 29	Check-in; Calibration of Volumetric Glassware	<b>1</b>
<i>Sept. 05</i>	<i>Labor Day, no class</i>	
Sept. 12	Least Squares Fitting of Data	<b>2</b>
Sept. 19	Gravimetric Determination of Calcium as $\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$	<b>3*</b>
Sept. 26	Neutralization Titrations – Part I	<b>4</b>
Oct. 03	Neutralization Titrations – Part II	<b>5</b>
Oct. 10	Using a pH Electrode for an Acid-Base Titration	<b>6*</b>
Oct. 17	Complex-Formation Titrations with EDTA	<b>7</b>
Oct. 24	Titration with Potassium Bromate for Vitamin C	<b>8</b>
Oct. 31	Determination of Iron in a Natural Water	<b>9*</b>
Nov. 07	$\text{Cu}^{2+}$ Determined by the Potentiometric Titration	<b>10*</b>
<b>Nov. 14</b>	<b>Check-out and Final Paper Examination, Bolin-311</b>	

\* Labs will be carried out in pairs; Lab partners can ONLY share raw data, but their lab reports must be finished and submitted independently.

## REQUIREMENTS:

- **Lab coat and Safety goggles:**  
Lab coat and safety goggles must be worn while anyone in the lab room is still doing experiment. No open-toed shoes are allowed in the laboratory. Always wear long-legged clothing.
- **A permanently bound lab notebook with consecutively numbered pages:**  
*Record all data and observation directly into your notebook in ink.* You should NOT achieve neatness by transcribing data from a sheet of paper to the notebook. Never attempt to erase or obliterate an incorrect entry. Instead, cross it out with a single horizontal line and locate the correct entry as nearby as possible.
- **lab manual:** read the assigned experiment and come prepared.

## GRADING:

- **9 lab reports @ 80 pts each = 720 pts** (the lowest one will be dropped)
- **Five lab quizzes @ 20 points each = 100 pts**  
Quizzes will cover the lab that you will be doing that day and the labs you had the weeks before. Therefore, always come prepared and do not forget what you learned previously. Always bring your calculators with you in the lab classes.
- **Final paper exam @ 180 pts = 180 pts**
- **Overall lab grade = (your total points ÷ 1000) x 100%**

## MISCELLANEOUS:

- **Lab starts on time:** Therefore, **5 points** will be subtracted from your lab grade for every 5 minutes you are late. If you exceed 20 minutes, you will **NOT** be accepted in the lab and receive zero for this lab.
- **Safety first:** Any student not wearing lab coat and goggles or wearing open-toed shoes will not be accepted in the lab and receive a grade of zero for the lab. Safety is the priority thing in the lab. If at any time, you are not sure whether you are working safely, consult your professor or TA immediately. There are no silly questions about safety, there are only silly accidents.
- **Cleanness:** After each lab, it is required to clean up your bench before leaving.
- **When and where to turn in reports:** Submit the **carbon** copy pages of your lab reports on the following Monday when you come for the new lab. All the later reports will be docked 25 points per day late.
- **Pages containing the original data MUST be signed by your instructor or TA before you leave for that lab.**