

## Chem 1211K Laboratory Fall 2017

- **Instructor:** Dr. Weiwei Guo
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Email is the best way to communicate with the instructor. While sending an email, please write the name of the course following with the subject.

- **Office:** 926 Langdale Hall
- **Office Hours:** MW 3:00-5:00 pm
- **Lab times:** Friday 12:30pm-3:30pm
- **Lab location:** Petit Science Center (PSC) Room 362/ PSC360 (pre-lab lecture is in PSC 362)
- **Text:** GSU 1211K lab manual — The Identification of An Organic Acid (will be distributed at first lab lecture)
- A course outline, schedule of activities, grading, etc., is included in the lab manual

### Lab schedules

Lab Date (Fridays)	Lab Session
9/1 (pg 1-12 & 70-72)	Lab 1 Safety video and safety exam, check in
9/8 (pg 13-17)	Lab 2 Density exp
9/15 (pg 24-26)	Lab 3 Recrystallization exp
9/22 (pg 27-30 & 34)	Lab 4 Melting point, prepare NaOH
9/29 (pg 30-38)	Lab 5 KHP titration
10/6 (pg 30-38) <b>(Quiz 1)</b>	Lab 6 HCl titration
10/13 (pg 30-38)	Lab 7 Unknown acid titration
10/20 (pg 39-41) <b>(Quiz 2)</b>	Lab 8 Computer search, Begin pKa titrations
10/27 (pg 42-52)	Lab 9 pKa titrations/ Na fusion
11/3 (pg 42-52)	Lab 10 pKa titrations/ Na fusion
11/10 (pg 42-52) <b>(Quiz 3)</b>	Lab 11 pKa titrations/ Na fusion
11/17	Lab 12 Finish all exps and check out
11/24	<b>Thanksgiving Break</b>
12/1	<b>Lab 13 (Final Exam) Final report due, submit lab notebook, check out. Check out must be completed.</b>

Lab 1: Check-in, Safety Orientation, Take Safety Exam.

Lab 2: Density Experiment.

Unknown #1: Density of Unknown

Lab 3: Recrystallization Experiment.

Unknown #2: Recrystallization Unknown

Lab 4: **Begin Term Project: Identification of Unknown Organic Acid.**

**Unknown #3:** Check Melting Point of Organic Acid Unknown

Make 0.1M NaOH from concentrated stock solution

Lab 5: **Continue Term Project.** KHP standardization titration

Lab 6: **Continue Term Project.** HCl titration

Lab 7: **Continue Term Project.**

Organic Acid Titration to determine equivalent weight of unknown.

Lab 8: **Continue Term Project.** Finish equivalent weight titration. Computer Search is done either before, during or after lab. Print 2 copies of computer search results. Turn one in notebook and one in lab report.

Lab 9: **Continue Term Project.** pKa trial 1 and prepare for sodium fusion\* (if conducting sodium fusion – depending on computer search results).

Lab 10-11: **Continue Term Project.** Two choices: (depending on computer search results)

pKa trials 2 and 3, OR sodium fusion

Labs 12: **Continue Term Project.** Finish any and all experiments. Check-out of lab as soon as experiments are completed.

Lab 13: **Final Exam. Lab Report and Lab Notebook Due.**

**\*\*At the end of every experiment, calculations are done and results are submitted to instructor ASAP (depending on experiments). Late submission = zero credit.**

## Comments on Lab:

1. This part of the course involves an individualized project-type lab.
2. No make-up labs! Please provide documentation if you are going to miss a lab with viable reasons, and discuss with your instructor! If you miss a lab, you will complete that lab when you return before you can continue. If you miss a quiz, you need a viable documentation.
3. **A bound notebook is required.** All pages must be numbered. Save at least two pages for the “Table of Contents”. All data must be recorded in this notebook by you. You may also leave enough space for taking note during Lab Lecture, which will be used to prepare for the labs and quiz. All pages in the notebooks must be numbered and dated. Do not tear out pages, or use white-out. If you make a mistake, simply cross-out the incorrect data and write an explanation. **Purposes, procedures, data, observations, calculations and conclusions are expected in your notebooks in order to get full credit for your notebooks.**
4. Before lab each week, students are responsible to read and write in their lab notebooks (title, purpose and procedures, materials and equipment to be used) about each experiment beforehand. **A summary in your own words (numbered/bullet points) about the experiment including purpose, materials, and experimental methods must be written in the notebook before beginning experiment.** TAs will check the notebooks before entering lab, and students without written notes in their notebook will not be allowed to enter. During lab, students are expected to **record data in ink into the notebook**. Refer to page 18-19 of lab manual for notebook format.
5. Always write down your unknown numbers in your lab notebook.
6. Data must NEVER be recorded in pencil/or on other books/papers, and later transferred to the notebook. At the end of lab, notebooks should be checked and signed by TAs at the conclusion of each lab session. **NO SIGNATURE, NO CREDIT.**
7. Students who miss lab lecture are not allowed to conduct experiments for the lab session
8. Safety glasses required at all times in the lab.

9. Dress appropriately. Students will not be allowed in the lab without appropriate clothing. a. No open-toe shoes (flip-flops, sandals, crocs, etc.) b. No shorts/ short skirts
10. No food and drinks allowed in the lab. **THIS INCLUDES CHEWING GUM!**
11. Cell phones are not permitted in the lab. If you have them on your person, you must turn them to silent.
12. Failure to follow safety rules will result in **expulsion from the lab with no make-up allowed.**
13. Cleaning up is part of the lab session. Students should stop working and begin cleaning up their work area, 15 minutes before the conclusion of the lab session.
14. When cleaning glassware: Step 1: Pour out chemicals from glassware into appropriate waste bin. **Step 2: Rinse the glassware and pour the rinse into appropriate waste bin, NOT THE SINK.** Failure to obey this rule will result in lab technique point deduction.
15. **Preliminary reports of data/results** must be submitted at the time of the completion of each experiment.
16. To pass the lab, students **MUST** take the lab **final** and turn in the **lab report**. Grading point distribution is on page 4 in lab manual. Lab report is due on Week 13 Lab on the final exam day. It is important that students work on the lab report as experiments progress during the semester. Lab report instructions/samples are on page 5 in the manual.
17. **Department Student Integrity Policy is on Pages 4 and 5 of lab manual.**
18. **Learn how to properly read a buret. You will be using it a lot this semester and you can lose many points if you do not record the volumes accurately. Always use two decimal places with a buret (eg. 10.23 mL)**
19. **Always record every decimal a balance gives you. If you are using the analytical balances always record 4 decimal places, even if they are zeros. (eg. 1.2358 g)**
20. **No grades will be given via e-mail or by phone.**