

# CHEM 1211K Lab (Thursday Section)

Fall Semester 2016 (CRN 80128, 80123, 81738)

**Pre-Lab Lecture:** Thursday 7:00 - 7:45 pm, PSC362 **Laboratory:** Thursday 7:55 - 10:00 pm, PSC360

**Instructor:** Dr. Keqin Kathy LI, Email: [Kli10@gsu.edu](mailto:Kli10@gsu.edu) Tel: 404-413-5557

**Office:** Langdale Hall 924. (38 Peachtree Center Avenue. 9<sup>th</sup> floor, enter through meeting room 923).

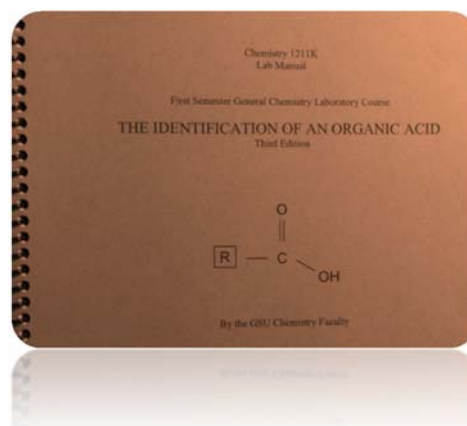
**Office Hours:** Wed: 10:45 - 11:45 am, and any other time by appointment.

**Text Book:** GSU Lab manual (to be handed out at first lab lecture).

A course outline, schedule of activities, grading, etc., is included in the lab manual

## Comments on Lab:

1. Individualized project-type lab.
2. Notebooks should be kept up to date; bound notebook required. Notebooks must be signed by TA's or lab instructor at the conclusion of each lab session.
3. Quizzes and final exam are closed-book. Quizzes may be announced or unannounced, closed book.
4. Safety glasses required at all time.
5. Cleaning up is part of the lab session. Students should stop working and begin cleaning up their work area no later than 15 minutes before the conclusion of the lab session.
6. Students must turn in reports on density, recrystallization, melting point, molarity of NaOH and HCl, and Equivalent Weight of unknown after the conclusion of each of these experiments.



## Lab Sessions:

- Session 1. Introduction, safety video, check-in.  
Session 2. Density experiment  
Sessions 3-12. Purification and characterization of an unknown carboxylic acid.  
Session 13. Final exam and check out. Final report and lab notebook due at this time. Graded final exams and final reports can be viewed, but will not be returned to the students.

## Lab schedules:

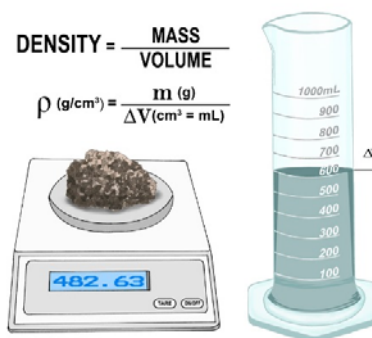
Lab Date (Wed.)	Lab Session
Sep. 1	Lab 1 (Check-in, Safety Orientation.)
Sep. 8	Lab 2 (Take Safety Exam and Density Experiment. <b>Density Unknown.</b> )
Sep. 15	Lab 3 (Recrystallization Experiment. <b>Recrystallization Unknown.</b> )
Sep. 22	Lab 4 ( <b>Begin Term Project: Identification of Organic Acid Unknown.</b> ) I. Check Melting Point of Organic Acid Unknown
Sep. 29	Lab 5 ( <b>Continue ...</b> Make NaOH stock solution, HCl titration).
Oct. 6	Lab 6 ( <b>Continue...</b> KHP titration.)
Oct. 13	Lab 7 ( <b>Continue...</b> Organic Acid Titration to determine equivalent weight of unknown.
Oct. 20	Lab 8 ( <b>Continue...</b> Finish equivalent weight titration. Computer Search is done either before, during or after lab. Print 3 copies of computer search results. Turn one in to the instructor, one in notebook and one in lab report.
Oct. 27	Lab 9 ( <b>Continue...</b> pKa trial 1 and choose if the sodium fusion needed* – depending on computer search results).

Nov. 3	Lab 10 ( <b>Continue...</b> depending on computer search results, pKa trials 2 and 3, OR sodium fusion)
Nov. 10	Lab 11 ( <b>Continue...</b> Check-out of lab if experiments are completed.
Nov. 17	<b>Make-up Lab, Clean-up. Guideline and review for final.</b>
11/24	<b>Thanksgiving Break</b>
Dec. 1	<b>(Final Report, lab notebook, Final Exam)</b>

## DETERMINATION OF UNKN

$$\text{DENSITY} = \frac{\text{MASS}}{\text{VOLUME}}$$

$$\rho \text{ (g/cm}^3\text{)} = \frac{m \text{ (g)}}{\Delta V \text{ (cm}^3\text{ = mL)}}$$



### ORGANIC ACIDS

Not as strong as inorganic acids

$$\begin{array}{c} \text{O} \\ || \\ \text{C}-\text{C}-\text{C}-\text{O}-\text{H} \end{array}$$

Citric acid

Acetic acid (vinegar)

Formic acid

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**Note:** Please read the entire syllabus and understand the grading system and all the additional information provided in it, including the following:

1. Students need to show their GSU Panther I.D. card when taking quizzes and final test.
2. The instructor reserves the right to assign seating during quizzes and final test.
3. Cell-phone calculators and programmable calculators are not allowed.
4. Cell-phones need to be kept either in purses or book-bags during exams or quizzes; they should be turned off at all times. In addition, usage of all electronic devices while in the lab, is not allowed.
5. If late for class, please enter through the back door.
6. Hats and hoods that partially cover the face will not be allowed during tests/quizzes.
7. There are not make-up labs unless students have a legitimate excuse for having missed a lab session. A lab make-up session is scheduled for the 12th lab session. A written authorization signed by the instructor is required.
8. A lab apron or coat and goggles are required at all times while in the lab. Students will not be allowed in the lab wearing shorts, sandals or open-toe shoes, or tops that expose shoulders.
9. Notebooks:
  - A. The student must bring to lab the write-up for the experiment to be performed on each session; this must include "bullets" of the procedure(s) to be carried out and data tables to be fill out.
  - B. The student must have the lab notebook signed by the TA or instructor at the conclusion of the lab. We do not accept any other options of records keeping.