

Chemistry 1212K Lab (Tuesday Section)
Fall Semester 2016, CRN 80129

Pre-Lab Lecture: Tuesday 10:00 am – 10:45 am, 362 Petit Science Center

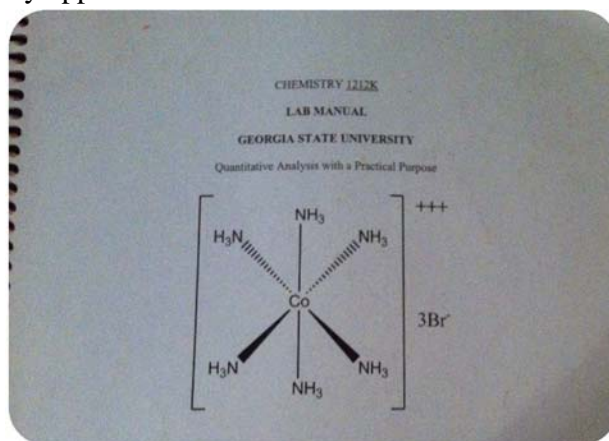
Laboratory: Tuesday 10:45 am – 1:00 pm, 355 Petit Science Center

Instructor: Dr. Keqin Kathy LI, Email: Kli10@gsu.edu Tel: 404-413-5557

Office: Langdale Hall 924. (38 Peachtree Center Avenue. 9th 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.



Learning Outcomes:

The course focuses on reinforcing concepts and stoichiometric calculations from Chemistry 1211 and 1212 lectures. The students will synthesize a compound containing Cobalt, NH₃ and halide (Cl⁻ or Br⁻). Then they will do **QUANTITATIVE ANALYSIS** to determine some properties of this compound, and will determine the formula of the synthesized product. This will involve precipitation reactions, acid-base titrations and redox titrations, and in doing stoichiometric calculations to find the mass % of each element in the compound. Students will also learn how to prepare solutions of known concentration, and the proper handling and disposal of acids, bases and other common chemicals.

Comments on Labs:

Individualized project-type lab. Notebooks should be kept up to date; **stitched, bound notebook required.**

Notebooks must be signed by TA's or lab instructor at the conclusion of every lab session. Quizzes may be announced or unannounced, closed book. **Safety glasses required at all times.**

Cleaning up is part of the lab session. Students should stop working and begin cleaning up their work area, including their hood space, 15 minutes before the conclusion of the lab session.

Students must turn in reports on all calculations and data sheets, following the conclusion of each experiment.

DATE	WEEK	CHEM 1212 LAB EXPERIMENTS
Aug 30	W1	Check-in , Safety Video, Desks & Synthesis assigned. Review safety procedures and equipment use. Obtain constant weight of Gooch crucible (weigh on analytical balance, heat 30mins, cool overnight in desiccator), do not touch with bare hands. Record Balance #. Reweigh following week. Review Buret & Analytical Balance use.
Sep 6	W2	Start Synthesis of Co-aquo-NH₃-halide (Cl⁻ or Br⁻) (assigned by instructor), reweigh crucible, heat, then cool in desiccator. Want constant weight +/- 0.0005 grams

Sep 13	W3	Complete Synthesis of Co-aquo-NH ₃ -halide (Cl ⁻ or Br ⁻), reweigh crucible, heat, then cool in desiccator, reweigh. Submit "Crucible Weight" Data Sheet.
Sep 20	W4	Precipitation of Halide. Determination of %Cl ⁻ or %Br ⁻ in synthesized compound.
Sep 27	W5	Complete second precipitation of Chloride or Bromide and determination of % halide.
Oct 4	W6	Prepare ~0.3M HCl solution. Titrate with primary standard THAM to standardize HCl. Submit "Preliminary %Halide "Data Sheet.
Oct 9		Last day to withdraw (from BOTH lab and lecture)
Oct 11	W7	Distillation of NH₃ into boric acid solution and titration of NH ₃ with standardized HCl. (BOTH distillation and acid-base titration must be carried out in SAME lab session). Determination of %NH ₃ in synthesized compound.
Oct 18	W8	Continue distillation and titration of NH₃ two more times. Determine %NH ₃ . Submit "Preliminary HCl Molarity "Data Sheet.
Oct 25	W9	Preparation of Na₂S₂O₃ and titration with KIO₃ to standardize Na₂S₂O₃. Submit "Preliminary Report on %NH ₃ "Data Sheet.
Nov 1	W10	Visible Spectroscopy of Cobalt complex. Submit "Preliminary Report on Standardization Na ₂ S ₂ O ₃ "Data Sheet.
Nov 8	W11	Analysis of H₂O₂ using Na₂S₂O₃. Submit "Preliminary Report on %Co "Data Sheet.
Nov 15	W12	Make-up Lab, Clean-up. Guideline and review for final. Submit "Preliminary Report on %H ₂ O ₂ "Data Sheet.
Nov 22		Thanksgiving Holiday
Nov 29	W13	Take Final Exam, Submit Lab Notebook and Final Lab Report (including summary data sheet. Clean-up & Checkout.

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. 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.
7. 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.

8. 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.