

**CHEM 1240**  
**GENERAL CHEMISTRY LABORATORY**  
**AUTUMN QUARTER, 2007**

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Section	Room	Day	Time	T.A.	Email
1	Olin 225	Monday	2:00-4:50 pm	Brent Schuchmann	bschuchm@du.edu
2	Olin 225	Monday	6:00-8:50 pm	Radhika Sreedhar	rsreedha@du.edu
3	Olin 225	Tuesday	6:00-8:50 pm	Daniel Pope	dpope4@du.edu
4	Olin 225	Tuesday	2:00-4:50 pm	Chutiya Lamkitcha	clamkitc@du.edu
5	Olin 225	Wednesday	2:00-4:50 pm	Brent Schuchmann	bschuchm@du.edu
6	Olin 225	Wednesday	6:00-8:50 pm	Chutiya Lamkithcha	clamkitc@du.edu
7	Olin 225	Thursday	2:00-4:50 pm	Daniel Pope	dope4du.edu

- You are required to do **EVERY** lab, if you miss your section you must make it up in the same week the lab is offered.
- If you cannot make your scheduled lab time you **MUST** get permission from your Teaching Assistant before changing.
- Reports are due one week from the scheduled finish of the experiment at the beginning of the next lab period. **Any report turned in 15 minutes after the start of lab is considered one day late. A penalty of 10% per day will be charged for late labs. No labs will be accepted after 4 days from original due date.**

**Notebooks:** You will be required to have a lab notebook. This should be used to record your data and observations. While your notebook will not be graded, you must have your Teaching Assistant initial it at the conclusion of each lab exercise.

**Prelabs:** There are prelab assignments with each lab, to be done **before** coming to lab each week. Write your answers to these prelab assignments in your

lab notebook. Your Teaching Assistant will initial it before you begin the experiment. If your prelab is not complete, you will not be allowed to begin the experiment. THIS REQUIREMENT IS NOT FLEXIBLE. IT IS FOR YOUR PROTECTION AND THE OTHER STUDENTS IN THE COURSE. You must come to lab prepared and informed.

<b>Grading:</b>	Pre-labs (20 pts each)	160
	Lab Project Summary (100 pts each)	600
	Formal Reports (120 pts each)	240
	<b>total</b>	<b>1000</b>

### EXPERIMENT SCHEDULE

WEEK	DATES	EXPERIMENT
1	Sept. 10-13	No lab.
2	Sept. 17-20	Check in/Atomic Emission Spectroscopy
3	Sept. 24-27	Spectroscopy Empirical Formula of an Oxide
4	Oct. 1-4	Periodic Properties of the Elements
5	Oct. 8-11	Synthesis of $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$ Formal lab report for this experiment.
6	Oct. 15-18	Molecular Geometry and Bonding
7	Oct. 22-25	Gravimetric Analysis of $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$
8	Oct. 29 - Nov. 1	Oxidation-Reduction Reactions
9	Nov. 5-8	Enthalpy of Neutralization. Formal lab report for this experiment.
10	Nov. 12-15	Checkout

## Lab Reports

In this course, there will be two different kinds of Lab Reports. Most Lab Reports will be short (two-page) project summaries that are submitted at the end of the lab period. For a two experiments, "formal" Lab Reports will be required. The requirements for the two types of Lab Reports are given below.

**A. Lab Project Summary (100 points).** The report for each experiment must be typewritten. A typical lab report should include:

Purpose of the Experiment (5 points). A one-or-two sentence statement of the objective(s), goal(s) or purpose(s) of the experiment.

Calculations (25 points). Sample calculations should be shown for each type of calculation required for the experiment. Calculations can sometimes be organized into a table.

Results (30 points). Relevant data, observations, and findings are summarized in this section. Tabulation of data, equations, charts, and figures can be used effectively to present results clearly and concisely. Schemes to show reaction sequences may be used here or elsewhere in the report. Do not reiterate the experimental procedure in this section.

Conclusions & Summary (15 points). A paragraph summarizing the main features of the report - the objectives, the findings and the conclusions.

Post lab questions (25 points).

**B. Formal Reports (120 points).**

Title Page (2 points). Include: (1) the title of the experiment, (2) your name, (3) the due date, and (4) the date submitted.

Purpose of the Experiment (5 points). A one-or-two sentence statement of the objective(s), goal(s) or purpose(s) of the experiment.

Experimental Details (15 points). This section should describe what was actually done. It is a succinct exposition of the lab notebook, describing procedures, techniques, instrumentation, special precautions, and so on. It should be sufficiently detailed that other experienced researchers would be able to repeat the work and obtain comparable results.

Calculations (28 points). Sample calculations should be shown for each type of calculation required for the experiment. Calculations can sometimes be organized into a table.

Results (30 points). Relevant data, observations, and findings are summarized in this section. Tabulation of data, equations, charts, and figures can be used effectively to present results clearly and concisely. Schemes to show reaction sequences may be used here or elsewhere in the report. Do not reiterate the experimental procedure in this section.

Discussion (20 points). The crux of the report is the analysis and interpretation of the results. What do the results mean? How do they relate to the theory, as well as the objectives of the project? To what extent have they resolved the problem?

This is the place to prove, in your own words, that you understand the concepts included in the experiment. This section should be written assuming the reader is not familiar with the experiment; however, note that you should not reiterate the experimental procedure in this section.

In addition to analyzing and interpreting the results of the experiment, and relating the results to the objectives of the experiment, in your Discussion you must address all of the bulleted items listed at the end of the lab experiment.

Conclusions & Summary (20 points). A separate section outlining the main conclusions of the project is appropriate if conclusions have not already been stated in the "Discussion" section.

A lengthy report, or one in which the findings are complex, usually benefits from a paragraph summarizing the main features of the report - the objectives, the findings, and the conclusions.