

Chemistry Department, University of California, Santa Cruz

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Thimann 317

Chemistry 1M, General Chemistry Lab

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Required

Materials: CHEM 1M/N Lab Manual; Laboratory Notebook (makes duplicates); scientific calculator; goggles

Grading:

<u>Activity:</u>	<u>Points:</u>	
Prelabs	7 × 25	= 175
Attendance	9 × 5	= 45
Week 1 Worksheet	1 × 30	= 30
Lab data summaries	5 × 25	= 125
Lab reports (2)	2 × 100	= 200
Final exam	1 × 100	= 100
Equation sheet	1 × 25	= 25
<u>Scholarship</u>	1 × 25	= 25
Total:		725

Note: To pass this course, you must: perform all experiments, complete all prelabs, turn in all lab summaries, turn in the specified lab reports, and get at least 50% on the final exam. This grading scheme is tentative but changes will be announced. There is a 25%-per-day-late penalty for late work (this includes turning work in at the end of the lab period).

If you are already enrolled by the first day of class, you have a spot in the lab and lecture as long as you are on time to your first lab meeting (late/absent students will be dropped from the lab if there are students waiting to add that section).

Make-ups: Do not miss a lab session. You must notify me and your TA in advance of an absence. Make-ups must be performed no later than 1 week after the missed lab period, and documentation regarding the absence must be provided. Make-up sessions will not qualify for attendance points.

Lab Attire: Goggles can be purchased at the stockroom. Bring your student ID. Closed-toed shoes, and covered shoulders, calves, and mid-riffs are required. No tank-tops, tube-tops, shorts, sandals, etc., are allowed. No "modified" clothes such as feet in sandals in plastic bags.

Lab-Prep: Pre-labs will be checked for completeness at the BEGINNING of the lab period. Pre-labs generally include: a title and date; vocabulary/definitions; pre-lab questions and answers; an outline of the procedure; and, any required data tables. Pre-labs should be written in your lab notebook (see the lab manual).

Lab Summaries: Lab summaries will be collected for 5 of the 7 experiments. Specific results and example calculations should be neatly written out. Your TA will tell you what information to include. Each summary is due at the beginning of the following lab period. The last summary will be due by 8:00 am Wed 11/22 so that it can be graded by the final exam. Your TA will tell you where to turn it in (probably your TA's office or mailbox).

Lab Reports: Two complete lab reports will be collected for specified experiments. Reports may be *neatly* written or typed. Please read the section in the manual regarding lab reports and see the following page. Also, be concise! Long reports are not necessarily good reports. Reports are due at the BEGINNING of the following lab period. You must turn in both reports (see the lab manual).

Schedule: You are highly encouraged to meet with the instructor. I am available for help. Office hours will be posted on the website and will be announced in your lab section.

Week of	Exp. # 2007-8 manual (Fall 07 or later)	Exp.# old manuals (Summer 07 or earlier)	Title
10/2 – 10/4	---	---	Check-in, 1M Error Worksheet
10/9 – 10/11	1	2	Density
10/16 – 10/18	2	5	Empirical Formula of MgO – <i>report</i>
10/23 – 10/25	3	10	Thermodynamics/Hess's law
10/30 – 11/1	4	7	Antacid Analysis by Back Titration
11/6 – 11/8	5	13	Unknown Acid Analysis – <i>report</i>
11/13 – 11/15	6	8	Hydrogen Emission Spectrum
11/20 – 11/22	holiday		
11/27 – 11/29	7	6	Freezing Point Depression; Check-out
12/4 – 12/6	---	---	Final Exam

Prelab and Lab Report Guidelines

Reporting scientific data is a skill you'll learn with practice. Be patient with yourself. Chemistry involves concise written communication (not an adjective-fest). Talk things out with me, your lab partner, and your peers. Also, get feedback as you work, rather than waiting until you're done. All labs must be performed and all reports must be submitted in order to pass the class.

Prelabs: These MUST be done in your lab notebook PRIOR to the lab period and they will be checked at the beginning of each lab session. Each should be clearly written in blue or black ink. Write hard enough so the duplicate copies are clear. Allow sufficient space. A prelab generally includes:

Title: The title of the experiment written clearly at the top.

Date: The date experimental data was recorded.

Definitions: A list of vocabulary words is given at the beginning of each lab. Give complete thoughts.

Prelab Questions: Prelab questions answered in complete sentences (as required by the lab manual; calculations should be written out clearly with units and correct significant figures).

Method: A flowchart or outline is generally the most helpful way to visualize the procedure and to keep you on-track. Make note of any deviations, omissions, or modifications that you make.

Tables: Data tables in which to record your data. You can't make up tables without carefully reading the lab. Leave adequate space to write legibly!!! Tables should include labels and units. Make sure you can record data with the appropriate number of significant figures, too. Any mistakes should be crossed out with a single line.

Initial and date the bottom of each page.

Summaries: Lab summaries present tables of results (values, errors, and primary sources of error), followed by sample calculations. Occasionally graphs will be required. Summaries must be completed no later than one week after the pertinent lab was performed. The final summary will be due sooner to insure it is graded by the final exam.

Reports (completed no later than one week after the lab was performed): Reports will be collected in your lab section. Each report should be typed or neatly hand-written (you can write it in your notebook). Figures and/or graphs generated by a program (e.g., Excel) can be taped or pasted in. You must do your own work (copying will result in a failing grade).

Abstract: This is a brief statement with a summary of procedure, results, and error. A few sentences should suffice.

Results: Numbered tables with titles are generally the clearest way to communicate your final results. Use enough space to make sure results are easy to find and read (label, sig. figs, etc.). Place a title above each table. Numbered graphs and/or figures may also be needed. Captions should be written under the figure. Graphs must have labeled axes (with units), and should be at least half-page in size.

Sample calculations: All calculations shown should include the general formula with symbols defined. Include units. Make sure answers contain the appropriate number of significant figures and final units. Number general equations sequentially so that you can refer to them in the discussion as required.

Review Questions: Answer all assigned review questions from the lab manual (in complete sentences and/or with complete calculations; all questions are assigned unless otherwise instructed).

Discussion/Conclusion: Critically analyze your results. What worked and why? What didn't work and why? Where did you encounter difficulties? How close were your results with the expected outcomes (based on calculations or literature values)? What were the primary sources of error (NOT "I did it wrong" or "I didn't do the calculations right"), and what was their impact on your data?

Language/Format: Any science writing should be done in third person, impersonal (observer) voice. For example, "A 10.00g sample of NaOH was titrated to the equivalence point with 24.5 mL of 0.345 M HCl", not "I titrated 10.00 g NaOH with 24.5 mL of 0.345 M HCl". Proofread (or have your partner proofread) your work to make sure it all makes sense, follows language guidelines, and is legible.