CHEMISTRY 112 LAB

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INTRODUCTION: This 3 hour laboratory course is designed to complement and supplement your lecture course. Students will work in pairs. Your laboratory grade will constitute 25% of your final course grade. Students must pass both the lecture and lab portion to pass the course.

SAFETY: You are required to wear safety glasses or goggles to perform any experiment. Failure to do so will result in your immediate expulsion from the laboratory and a grade of zero will be recorded as a lab grade for that experiment.

TEXT: Chemistry 112 Laboratory Manual

ATTENDANCE: The laboratory schedule will be followed and, as make-up labs are difficult to arrange, you are expected to attend every lab session. If you miss a lab for legitimate reasons it is YOUR responsibility to inform your instructor (preferably in advance) so that you can make it up.

LAB REPORTS: Students will work in pairs BUT each student will submit an individual lab report. (Students who submit lab reports that are identical will have their grade reduced.). The lab report must be submitted before the beginning of the next lab. Failure to do so will result in a penalty to be assessed by the instructor.

The lab report should consist of the following:
Introduction- the goal of the experiment
Experimental- only comment on changes to the procedure; do not rewrite the procedure.
Data and Results- present data in a clear and logical manner. Sample calculations should be shown with correct significant figures and units. Comment on the results. Did you achieve the goal of the experiment. How confident are you in your data etc.
In-Lab discussion information should be included in the lab report.

LAB NOTEBOOK: This book should be a bound, composition book, with a table of contents at the beginning. ALL observations, calculations, deliberations are to be included in this book. This book must be kept by each student AND initialed by your lab instructor at the end of the lab. Draw a line through an incorrect entry and place the correct entry next to it.

QUIZ: The pre-lab quiz is given online (blackboard, under CHL 112) and will be available the day before the experiment. The goal of the quiz is to help assure that the student has read the lab and that they understand the key concepts of the experiment.

GRADING: Your laboratory grade will be based on the following criteria:
Lab Reports (70%)
Lab Notebook (10%)
Lab Quiz (10%)
Lab Technique (10%)
General Rubric for Grading Lab Reports

1) Introduction (~15%)
Discuss the chemistry that is to be explored in the chemistry. Include key concepts.

2) Procedure (~5%)
Refer to procedure in lab manual, then provide any differences from published procedure.

3) Experimental Results (~30%)
Data table
Graphs as appropriate
- Axes labeled
- Scales fully utilized (data fill the graph, not just in one corner)
- Title on graph to know which set of data the graph refers to
Data expressed with appropriate significant figures and units
Include any qualitative observations
Sample calculations included for each type of calculation in report (can be attached at end)

4) Conclusions (~40%)
All individual questions from lab report addressed
- Must include both in-lab and post-lab questions
- Include question as well as answer
- Top marks only given if expand on answer and provide answer as a complete paragraph. Don’t just give one sentence answer like you would on an exam or homework. This is a report and as such answer should be a complete thought.
Data compared to expected results (literature values) with % error given.
Summary table required
This not a repeat of earlier raw data, but may include a repeat of calculated values.
Should include final experimental numbers as compared to literature values.
Purpose is to help the reader understand what you learned, not just what you measured.
Discuss possible sources of errors (not just human error) and possible improvements
Overall conclusions
*** This last item is critical, don’t just stop with the results.
Instead must comment on what the results mean

5) Overall Impact of Report (~10%)
Neatly typed or printed
Data pages taken straight out of lab manual will not get top marks
Correct spelling
Evidence that time and thought was spent on preparing the report.
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<td>Ideal Gas Behavior</td>
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<td>Determination of the Gas Constant</td>
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<td>Feb. 6</td>
<td>Evaporation and Intermolecular Attractions</td>
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<td>Freezing Points of Solutions</td>
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<td>Reaction Rates and Concentration</td>
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<td>March 3-7</td>
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