I. COURSE DESCRIPTION:
General Chemistry Lab I is a laboratory compliment to General Chemistry I. This course is the first of a two-semester sequence General Chemistry Laboratory. The laboratory course will investigate areas including density, composition and stoichiometry using techniques such as titration and spectroscopy.

II. COURSE OBJECTIVES:
This course is designed to give students hands on experience in dealing with chemical concepts. It will introduce the student to the techniques and procedures that are important to the successful practice of experimental general chemistry. At the end of the course the student should understand the technical aspect of chemistry, including developing a proper scientific approach to the performance and interpretation of experiments and experimental data.

III. TEXTBOOK AND OTHER MATERIALS:
Text: None required.
Gen. Chem. Lab-Blackboard Website: Important information is posted regularly on Blackboard. The website has important information on; schedules, instructor contact information, safety, lab supplementary material, and lab announcements. Students are responsible for the information on Blackboard-visit it often.

Materials Needed:
• A bound pre-numbered notebook is required.
• A white lab coat and spill proof safety goggles are required.
• A scientific calculator: Quizzes will be given every week and will often require calculations. Therefore you must come to lab every time with a working calculator. Note that you will not be allowed to use your phone as the calculator so come prepared otherwise you may not be able to do the required calculations and therefore perform poorly on the quiz.
IV. COURSE GRADE

Lab Grade: The laboratory grade will be based upon lab technique/notebook grade, lab reports, quizzes and final exam. A list and description of the possible graded assignments is given in Section X of this syllabus. Final letter grades for the lab will be as follows: A = ≥90%, B = 89-80%, C = 79-70%, D = 69-60%, F = <60%.

Lab Notebook/ Lab Technique: At the end of the semester, your Instructor/Teaching Assistant will assign you up to 30 points based on your lab technique during the term. Important criteria include being well-prepared, arriving on time, being punctual in starting and finishing experiments on time, neatness in carrying out and cleaning up experiments, being safety conscious and being organized in your work. Since the lecture portion of the lab is extremely important points may be deducted, at the discretion of the instructor, from the lab technique grade for every lab lecture missed. Also any student, who misses the first introductory/safety lab at the start of the semester, may at the discretion of the instructor have points deducted from their lab technique grade. Your lab notebook will be reviewed and graded for specific content at the end of each class. As discussed later in this document, the laboratory instructor must sign your notebook before you leave each session. Know also that your lab notebook will be collected at the end of the semester to be graded for completeness and proper use.

Quizzes: The questions will cover your understanding of the experiment to be covered that day as well as your understanding of the experiment performed that week.

Final Exam: The final exam is cumulative and will cover all relevant information covered during the semester including but not limited to background material, techniques, reactions, chemicals, safety information, and chemical concepts.

NOTE: Quizzes and tests will often require calculations so you must come to lab every time with a calculator. Phones CANNOT be used instead of calculators. If you are seen using a phone during a quiz/test you will be given a zero for that quiz/test.

Laboratory Notebook: A string bond notebook with numbered pages is required.
Safety Goggles: A pair of safety goggles are required. Safety glasses are not permitted. If you have any questions come to the lab before buying an unsuitable pair.
Lab Coats: Lab coats are required.

V. EVALUATION:
The laboratory grade will be based upon attendance, lab technique, write-ups of lab experiments, and final exam. Important criteria for the lab technique grade include being well prepared, neatness in carrying out and cleaning up experiments, being organized in your work, and being safety conscious. The lab reports are due at the beginning of the Thursday lab period for the lab performed earlier that week on Tuesday. No late lab reports will be accepted. The final exam will cover experiments that have been done in the lab up to the time of the exam. Final letter grades for the lab will be as follows: A = ≥90%, B = 89-80%, C = 79-70%, D = 69-60%, F = <60%.
**LAB GRADE**

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Lab Reports</td>
<td>3@40</td>
<td>120</td>
</tr>
<tr>
<td>Attendance</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>Pre-lab &amp; Notebook</td>
<td>3@10</td>
<td>30</td>
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<tr>
<td>Quizzes</td>
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<td>80</td>
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<td>Lab Final Exam</td>
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<td>100</td>
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<tr>
<td>Lab Technique Grade</td>
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<tr>
<td><strong>Total Points Possible</strong></td>
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<td>450</td>
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**Lab Reports:** You will write three lab reports for the semester. Each lab report will be worth **40 points**. A uniform grading scheme is used.

**Lab Technique:** At the end of the semester, your instructor will assign you up to **30 points** based on your lab technique during the term. Important criteria include being well-prepared, being punctual in starting and finishing experiments on time, neatness in carrying out and cleaning up experiments, being safety conscious and being organized in your work. *You will receive a zero for your technique grade if you do not participate in the end of semester lab clean up.*

**Quizzes:** All quizzes will contain multiple choice questions and will be worth **20 points each**. There will be **no make up quizzes** offered.

**Final Exam:** The lab final will include the material covered in the labs conducted during the semester. The final is worth **100 points**. The format will be multiple choice questions. The questions will cover the background material, techniques, procedures, and general reactions/processes. The final exam may not be dropped.

**VI. THE RULES**

**Eye Safety:** When in lab, always wear your **safety goggles**. A first violation will result in a verbal notification. A second violation will result in a written notification that will put into your school record and a "lab technique" penalty. A third violation of the safety goggles rule will result in your removal from lab and a failing grade for the class. If you need a break from wearing the goggles, step out into the hallway and remove them for a few minutes. Also, be advised that wearing contact lenses in the laboratory can be harmful to your eyes, even when you wear safety goggles over them.

**Clothing:** No open toe shoes, shorts (or short dresses), or mid-drefs (short tops) are allowed in the lab.

**Keep it Clean:** Keeping things clean will keep any chemicals in the lab and not in your home. Always wash your hands just before leaving the lab. Never take samples or glassware out of the lab. Do not place your coats, backpacks and other personal items on the bench tops or floor in the lab. They can be placed in the cabinets under the benches. Keep in mind; anything you bring into the lab should be treated with care at home. Your notebook and lab book may be picking up chemicals you spilled on the bench or floor.
and did not clean up. When you take your contaminated books home you may be spreading chemicals to your room.

**Disposal of Chemical Wastes:** During the experiments, you will generate several types of waste, which need to be handled properly. Organic wastes should be placed in an appropriately marked bottle for organic waste. Aqueous waste (such as water layers from extractions) should be poured into the appropriately marked bottles. Solid wastes (such as drying agents and used silica gel) should be placed in an appropriately labeled solid waste bottle. NEVER PUT CHEMICALS-ORGANIC OR INORGANIC-DOWN THE DRAIN! Broken glassware should be placed in the broken glassware box. Never put glass into the trashcans.

**Ask for Assistance:** If you have any questions about the safety of any procedure, please ask your instructor before proceeding.

**VII. GENERAL INFORMATION:**

**Make-up Labs:** Due to time constraints, no make-up labs will be offered. A student must be present and perform the lab to receive a grade for the lab. Reports turned in by an absent student using another student’s data will not be accepted.

**Academic Integrity and Honesty:** All students are expected to conform to college-level standards of ethics, academic integrity, and academic honesty. By enrolling in this course, you agree to be bound by the Regulations and Procedures published in the TAMU-CC STUDENT HANDBOOK. Group interactions, investigations, and studying are encouraged; However, duplicative work will be treated as cheating and will receive a grade of zero. Even though you will be asked to work in pairs in lab, each person is responsible for turning in a separate and unique lab report. Anything that is viewed as cheating on an exam will be given the most severe penalty possible, most likely an “F” for the course, but may include more severe punishments.

Honesty in reporting results is one of the essential characteristics of your laboratory work. Products may be periodically collected and checked to see if they conform to the properties (weight, mp) that you have cited. Relatively little of your grade depends on getting "good" quantitative results and you will be more severely penalized for misrepresenting results than for honestly reporting "poor" results. Copying lab reports, receiving any type of help on an exam or quiz from another person or any source (notes, etc.) not authorized by the instructors shall be considered academic misconduct and as a result will be penalized to the fullest extent possible.

**Lab Conflicts:** The instructor requests that any conflicts that may occur either in the course or lab with the material, assignments, grading, teaching assistants, or instructor be discussed with the instructor before any complaints are discussed with the department chair. The students are also insured that no retaliation such as lowering of a grade will occur in response to any discussions or complaints about the course or lab.
VIII. GUIDELINES FOR YOUR LAB REPORTS

Pre-lab
As part of each experiment, we ask that you prepare a pre-lab report in your lab notebook. This section should provide enough specific information on the procedure (e.g., identity and quantity of materials, reaction times, temperatures, etc.) to enable you to perform the experiment. The summary should provide an overview of the experiment showing your understanding of the techniques and concepts being studied.

Pre-lab Summary: Summarize on one page: Title of the experiment, purpose of the experiment, technique(s) or reactions(s) being used, mechanism for the reactions being performed (if applicable), and a brief chronological listing of the steps you will follow in the experiment.

Lab Reports
The full lab report should consist of a title, introduction, background, procedure, results and observations, discussion, conclusions, and appendices.

Title: Give the title and experiment number.

Introduction: Clearly state the aim of the experiment, including the name or type of the main technique or procedure and how the results were checked. Include a justification of the importance or relevance of the experiment. (3-4 sentences)

Background: This section should include the basic principles and theory underlying the particular experimental technique or synthetic step. A brief description of the scope and limitations of the technique or reaction should be provided. A mechanism should be provided for every reaction being performed in lab unless otherwise stated by the instructor. (4-5 sentences)

Procedure: Include a brief narrative description of the major steps for the particular technique/procedure. You should refer to the procedure in your pre-lab write-up and the changes that you made in the lab. You do not need to rewrite a step-by-step description of the procedure since you will include a copy of the pre-lab write-up, which should contain this information. (4-5 sentences)

Results and Observations: From the data and observations in your laboratory notebook, summarize the outcome of significant points in the experiment. Be sure to include all calculations and show your work. Also, include a description of the spectral interpretations; significant peaks, relative areas, etc.

Discussion: This section is probably the most important part of the write-up for showing your understanding of the experiment. Be sure to analyze your results and argue why you can draw certain conclusions. Discuss the expected results along with your actual results and observations. Draw on the theory and your experience in order to rationalize the outcome of the experiment, especially possible reasons for deviations from the expected results.
Conclusions: Summarize the outcome of the experiment and comment on its effectiveness.

Appendices: Include, for example, copies of your pre-lab write-up, copies of the notebook used for the experiment, and spectral data. Your notebook must be signed by yourself and counter signed by your lab instructor before you leave the lab. If the copy of your lab notebook that you turn in does not contain the signature of your instructor, you will not receive the Pre-lab and Notebook grade (5 pts) for your lab report.

IX. GRADING SCHEME FOR LAB REPORTS
The following guidelines will generally be followed in grading lab reports.

- Pre-lab and Notebook: 10 pts
- Introduction, background, and procedure: 10 pts
- Results and Observations: 10 pts
- Discussion and Conclusion: 10 pts

X. LECTURE/LAB SCHEDULE
The schedule below is a preliminary outline of the semester. It is your responsibility to keep up with changes to this schedule.

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<tr>
<th>DATE</th>
<th>LAB</th>
<th>REPORT</th>
<th>QUIZZES/FINAL</th>
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<tr>
<td>T 7/09</td>
<td>Introduction/Check-in/Dry Lab</td>
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<td>R 7/11</td>
<td>Precision &amp; Accuracy of Glassware</td>
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