

# Adv Chemistry-Intro Lab Grading Contract

During Weeks 3-6 in the Fall Trimester, Advanced Chemistry students will have the opportunity to complete a set of labs that will review course material from 10<sup>th</sup> grade Chemistry as well as provide a solid foundation for lab skills. These introductory labs will be graded based on this lab grading contract as outlined below. Each bundle is the minimum requirement for that grade assignment. Work that falls between bundles will be assessed with  $\pm$  for the grade most accurately describing the student work.

**Procedures and guidelines for lab analysis options are provided separately in the course OneNote.**

A Grade Bundle	B Grade Bundle	C Grade Bundle	D Grade Bundle
Complete all 3 required labs	Complete all 3 required labs	Complete all 3 required labs	Complete 2 out of 3 required labs
Complete 2 optional labs	Complete 1 optional lab	No optional labs	No optional labs
<ul style="list-style-type: none"> <li>Complete 3 basic lab reports and 2 alternative lab report formats</li> </ul>	<ul style="list-style-type: none"> <li>Complete 3 basic lab reports and 1 alternative lab report format</li> <li>Complete 2 basic lab reports &amp; 2 alternative formats</li> </ul>	<ul style="list-style-type: none"> <li>Complete 3 basic lab reports</li> <li>Complete 2 basic lab reports &amp; 1 alternative format</li> </ul>	<ul style="list-style-type: none"> <li>Complete 2 basic lab reports</li> <li>Complete 1 basic lab report &amp; 1 alternative format</li> </ul>
Quality of work assessed exceeds expectations	Quality of work assessed mostly exceeds expectations	Quality of work assessed meets expectations	Quality of work assessed mostly meets expectations
Must turn in ALL work on time including the weekly lab analyses	Must turn in ALL work on time including the weekly lab analyses	Must turn in final product work on time and most weekly lab analyses	Work must be turned in within 7 days of the posted due dates

## Lab Investigation List:

Required Labs:

- Determine citric acid content in a household beverage mix via titration with indicator
- Determine the  $\text{Co}^{2+}$  concentration in a soil sample using Beer's Law
- Determine the water hardness in a sample using gravimetric analysis

Optional Labs and Extensions:

- Standardize a NaOH solution in preparation for the citric acid titration
- Using paper chromatography to determine dyes present in a Kool-Aid Sample
- Determine the molar mass of a gas by collecting it over water
- Determine the empirical formula of a hydrated compound

## Lab Analysis Options:

- Most labs should be reported using the basic lab report format/template
- Mini-poster presentation on a legal sized manila folder
- Lab Comic: Determination of Citric Acid Content in Beverage
- Creative alternative proposed by student and agreed to by Dr. Duffy

### Suggested Calendar Options for “A Grade Bundle”:

Date	In Class LAB Plan and DUE dates	LAB Related Homework Plan
Tues 9/21	<b>QA 1: Lab Safety</b> <ul style="list-style-type: none"> <li>Lab Contract &amp; Check Out</li> </ul>	<ul style="list-style-type: none"> <li>Review and Sign Lab Contract</li> <li>Prep Lab Notebook for Day 1</li> </ul>
Thurs 9/23	<ul style="list-style-type: none"> <li>Lab Day 1: Standardization of NaOH</li> </ul>	<ul style="list-style-type: none"> <li>Complete Basic Lab Report for Std of NaOH AND Prep for next lab</li> </ul>
Mon 9/27	<b>DUE: Ink Chemistry 1</b> <ul style="list-style-type: none"> <li>Option 1: Citric acid content in household beverage</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Option 2: Make dilutions and obtain absorption data for Co<sup>2+</sup>/Beer's Law Lab</li> </ul>	Lab Homework: <ul style="list-style-type: none"> <li>Complete Analysis for citric acid</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Complete Graph for Beer's Law Lab AND Prep Hard Water Lab</li> </ul>
Weds 9/29	<ul style="list-style-type: none"> <li>Option 1: Citric Acid Lab Comic Work Time</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Option 2: Cobalt analysis using graph from Beer's law AND Hard Water Lab Day 1</li> </ul>	Lab Homework: <ul style="list-style-type: none"> <li>Complete Lab Comic AND prep for Beer's Law Dilutions</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Complete Cobalt Lab Report</li> </ul>
Fri 10/1	<b>QA 2: Lab QA 1</b> <ul style="list-style-type: none"> <li>Option 1: Make dilutions and obtain absorption data for Beer's Law Lab</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Option 2: Hard Water Lab Day 2 and calculations</li> </ul>	<b>DUE: Lab Analysis 1</b> Lab Homework: <ul style="list-style-type: none"> <li>Complete Graph for Beer's Law Lab AND Prep Hard Water Lab</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Complete Hard Water Lab Write Up AND Prep for Citric acid lab</li> </ul>
Tues 10/5	<b>DUE: Ink Chemistry 2</b> <ul style="list-style-type: none"> <li>Option 1: Cobalt analysis using graph from Beer's law AND Hard Water Lab Day 1</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Option 2: Work/Study Day</li> </ul>	Lab Homework: <ul style="list-style-type: none"> <li>Complete Cobalt Lab Report</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Catch Up</li> </ul>
Thurs 10/7	<b>QA 3: Lab QA 2</b> <ul style="list-style-type: none"> <li>Option 1: Hard Water Lab Day 2 and calculations</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Option 2: Citric acid content in household beverage</li> </ul>	<b>DUE: Lab Analysis 2</b> Lab Homework: <ul style="list-style-type: none"> <li>Complete Hard Water Lab report</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Complete citric acid lab report</li> </ul>
Tues 10/12	<b>DUE: Ink Chemistry 3</b> <ul style="list-style-type: none"> <li>Lab Day 7: Paper Chromatography Lab</li> </ul>	HW: Lab Portfolio Completion  <b>DUE: Lab Analysis 3 by Friday 10/15</b>

**\*Final Lab Contract Portfolio DUE: Monday 10/18 @ 8 am**

**LAB ANALYSES:** These MUST be reports for the three mandatory lab analyses. Feedback will be provided in terms of meeting or exceeding expectations. Students may revise any of these prior to the Lab Contract Completion based on feedback given to improve the quality of their work.

	OPTION 1 Suggestions	OPTION 2 Suggestions
<b>Lab Analysis 1</b>	Comic-Citric Acid in a Beverage	Basic Lab Report-Co <sup>2+</sup> in Soil
<b>Lab Analysis 2</b>	Basic Lab Report-Co <sup>2+</sup> in Soil	Mini-Poster-Hard Water Analysis
<b>Lab Analysis 3</b>	Mini-Poster-Hard Water Analysis	Alternative Lab Report-Citric Acid in a Beverage

ALL Lab Analyses MUST be in the Lab Notebook section of the student's OneNote. Only the three mandatory lab analyses will be submitted to Canvas for feedback. Prior to the Lab Contract Completion, the student should organize their Lab Notebook section, so it is clear which labs were completed for analysis and submission for final evaluation at the completion of the lab contract. If a student chooses to revise a lab write-up that was submitted to Canvas, the previous draft should be removed from the Lab Notebook section to avoid confusion.

**NOTE:** The Citric Acid in a Beverage Lab Comic may NOT be submitted electronically.

**Student Initials:** \_\_\_\_\_

**LAB QUIZZES:** There will be THREE lab quizzes available for students to take in any order. Students only need to complete 2 of the 3 lab quizzes. The third quiz may be taken to improve the grade of ONE of the previous quizzes. All quizzes retakes must be completed prior to student conferences. The quizzes will cover content related to one of the three mandatory lab assignments. The lab quizzes will make up 20% (or 20 points) of the total lab grade and are not explicitly part of the contract since all students must take these quizzes as part of our normal class time.

**Student Initials:** \_\_\_\_\_

This **Lab Grading Contract** is entered into between Dr. Anne Duffy (teacher) and

\_\_\_\_\_ (print student name) in agreement to the terms outlined above in awarding a lab contract grade out of 100 points, 80% of which is outlined in the "Grade Bundles" on page 1. Upon the successful completion of the lab contract on or before Monday, October 18, 2021, the contract will be deemed fulfilled and the lab grade will be awarded on Canvas after a time that allows the teacher to evaluate the work of each student in the Advanced Chemistry course.

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Parent Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

\_\_\_\_\_  
Teacher Signature

\_\_\_\_\_  
Date

**Optional Disclosure:** I, \_\_\_\_\_ (student name), intend to pursue a grade of \_\_\_\_\_