

## General Chemistry II Lab

<b>Instructor:</b>	Dr. Terry	Office A102a	<a href="mailto:tjerry@unm.edu">tjerry@unm.edu</a>
<b>Lab:</b>	Tue 1:30-4:15 in Academics 128		
<b>Tutoring Hours:</b>	Mon/Wed 2:30 – 3:30 pm	STEM Center	
	Tue/Thurs 9 – 10:30 am	Office - A102a	
	Thurs 1 – 3 pm	STEM Center	

**Required Supplies:** Lab Coat, Safety Goggles, Lab Notebook, 3-ring binder

**Course Description:** This course is designed to provide practice in laboratory measurements, using laboratory glassware and instrumentation, communicating scientific information, and in performing chemical calculations.

### Course Requirements

- Students are responsible for all assignments regardless of attendance. There are no make-ups for laboratory experiments or exams.
- Assignments may be turned during lab, or to the Academic Affairs Office, or over email, on the due date.
- Blackboard Learn and the UNM email systems will be used to distribute class announcements and lab handouts. Make sure your contact information is up to date and check your email often.
- Calculators will be used during many labs and need to have log, anti-log, and exponential functions.
- **LABORATORY SAFETY AND CLEANLINESS WILL BE CLOSELY MONITORED.** (*Safety Rules may be found in the first lab worksheet.*) Points will be deducted for safety violations (food in lab, not wearing goggles properly, improper disposal of chemicals, etc.) and for improper treatment of lab equipment.
- Mandatory laboratory clothing: **GOGGLES**, closed toed flat **shoes** (no high heels, no exposed toes, no exposed heels), and **LAB COATS** are all **REQUIRED FOR MOST LABs**. **Students without proper personal protective equipment will not be allowed in lab.**

**Students without proper PPE, who do not have a written procedure, or who miss the pre-lab lecture will not be allowed to complete lab.**

### Grading

~330 pts	<b>Experiments and Activities</b> (~ 30 pts each)
100 pts	<b>Independent Research Project</b> (~19%)
	20 pts Procedure, Hypothesis, Materials List
	40 pts Lab Report/Poster
	40 pts Presentation
100 pts	<b>Final Exam</b> (~19%)

**Grades:** 98-100% A+, 92-97% A, 90-92% A-; 88-89% B+, 83-87% B, 80-82% B-; 78-79% C+, 73-78% C, 69-72% C-; 60-68%=D; <60%=F

The total number of points collected for experiments may change if a lab must be cancelled.

## Student Learning Objectives

### By the end of the course, students will be able to...

1. Conduct laboratory experiments safely by wearing appropriate protection, by handling and disposing of chemicals correctly, and by putting away all laboratory equipment and cleaning your lab bench after use.
2. Prepare scientific graphs to demonstrate quantitative relationships between variables.
3. Demonstrate mastery in making chemical measurements.
4. Demonstrate mastery in experimental techniques including: the preparation of solutions using volumetric glassware, conducting isolation methods such as filtration, conducting calorimetric measurements, and conducting spectrophotometric measurements.
5. Write simple hypotheses based on selected chemical principles and/or observations.
6. Design experimental procedures for simple lab questions.
7. Properly use a lab notebook to record experimental data and observations with correct significant figures and units.
8. Make meaningful analyses of experimental data and summarize results in a proper format.
9. Communicate scientific arguments effectively and logically in written and oral forms.

### Independent Research Project

- The independent research project for CHEM 124L has three components: the research proposal, the lab report, and the research presentation.
- Each lab group will develop their independent research proposal. It must involve non-alcoholic drinks (ie. Coca-cola, Sprite, Milk, RedBull, Orange Juice, etc.). Your idea must be approved by Dr. Terry. No two groups will test the same hypothesis or do the same experiments.
- The research proposal is due **week 9**. Turn in 1 per lab group. Include the hypothesis, a list of materials, a proposed method, and references. You will be graded on originality, organization, sound scientific ideology and proper grammar.
- After approval of your research proposal, you will conduct the experiments during **week 12 and week 14**. No unauthorized experiments should be conducted at this time. If an unauthorized experiment is conducted, you will receive a zero on all components of the independent research proposal.
- If experimentation is completed during **week 12**, lab time on **week 14** can be used to begin compiling data and creating the lab report and presentation.
- The research presentation will occur during **week 16**.

## **General Campus Policies**

### **Academic Honesty**

*Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, including dismissal, against any student who is found responsible for academic dishonesty. Any student who has been judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.*

*Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; and misrepresenting academic or professional qualifications within or outside the University.*

### **Equal Access**

If you have a documented disability, please make sure Equal Access Services has contacted me as soon as possible to ensure that your accommodations are provided in a timely manner.

### **Title IX**

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education (see pg 15 - <http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>

### **Equal Opportunity**

Harassment is a form of discrimination. When University faculty, administrators, and supervisors witness or receive a written or oral report or complaint of discrimination or harassment, they are required to engage in appropriate measures to prevent violations of this policy and promptly notify OEO, including notification of any actions taken to achieve informal resolution of the complaint. The University relies on its employees to notify the University’s OEO office of all disclosures of discrimination and harassment as defined in this policy. <https://policy.unm.edu/university-policies/2000/2720.html>

Date	Fall 2015 Chem 124 Lab Schedule	
	Lab	Notes
1 Jan 17	<ul style="list-style-type: none"> <li>Safety, Lab Notebook, Measurements Review WS</li> <li>Independent Project Description</li> <li>Chem121 Review Games</li> </ul>	Measurements WS (15 pts) Games (15 pts)
2 Jan 24	<b>Jet Fuel for Thought Activity (30 pts)</b> <i>Due before lab: Online Quizzes (30 pts)</i>	Online quizzes due before lab: Safety, Equipment, Fuel Pre-lab
3 Jan 31	<b>Colligative Properties of Candles</b>	Completed lab notebook and PPE*
4 Feb 07	<b>Solution Spectroscopy</b> <i>Due: Candle Report (30 pts)</i>	Completed lab notebook and PPE*
5 Feb 14	<b>Kinetics of Bleaching Food Color</b> <i>Due: Solution Report (30 pts)</i>	Completed lab notebook and PPE* <i>Don't wear nice clothes.</i>
6 Feb 21	<b>Ca Titration of Water Samples</b> <i>Due: Kinetics Report (30 pts)</i>	Completed lab notebook and PPE*
7 Feb 28	<b>Le Chatelier's Principle</b> <i>Due: Ca Report (30 pts)</i>	Completed lab notebook and PPE*
8 Mar 07	<b>Independent Project Part 1</b> <b>Safety Violations Photo Shoot</b> <i>Due: Le Chat. Report (30 pts)</i>	Bring lab notebook
9 Mar 14	<b>Spring Break</b> <i>Independent Project Proposal due via email (40 pt)</i>	
10 Mar 21	<b>Determine <math>K_a</math> of Weak Acid</b>	Completed lab notebook and PPE*
11 Mar 28	<b>Ocean Acidification Activity (30 pts)</b> <i>Due: Determine <math>K_a</math> of Weak Acid (30 pts)</i>	Completed pre-lab worksheet and PPE*
12 Apr 04	<b>Independent Project Part 2 – Experimentation</b> <i>Conduct experiments.</i>	Bring lab notebook and PPE*
13 Apr 11	<b>Thermodynamics of Malic Acid Dissolution</b>	Completed lab notebook and PPE*
14 Apr 18	<b>Independent Project Part 3 – Analysis</b> <i>Analyze data, Organize presentation and Report.</i> <i>Due: Malic Acid Report (30 pts)</i>	Completed lab notebook and PPE*
15 Apr 25	<b>Lab Final Exam (100 pts)</b>	Bring lab notebook and PPE*
16 May	<b>Final Project Presentation (40 pts)</b> <i>Turn in Lab Report/Poster (40 pts)</i>	Lab notebook and PPE required
Finals Week – no lab		

*\*Must bring lab notebook, goggles, & lab coat to this lab and every lab hereafter.*