

CHEM 123-502: General Chemistry I Lab

Fall 2015

Instructor: Sarah Toews Keating, Ph.D.

Drop-in office hours (A134): MT 1:00-2:30 PM,

WR 2-3 PM

STEM center hours: T 10 AM – noon

Lab: R, 10:30 AM-1:15, A128

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Course Description: Practice in laboratory measurements, in performing chemical reactions, and in chemical calculations.

Course Requirements:

- **Access to UNM Learn and UNM email:** Grades and additional materials will be posted on UNM Learn and important class announcements will be made to your UNM email address. Please check your email regularly. Valencia provides internet and computer access at the library, Learning Resource Center and STEM center.
- **Lab notebook** (bound, carbon copy pages)
- **Personal Protective Equipment** (safety goggles, lab coat, close-toed non-high-heeled shoes, socks, clothing covering lower extremities) for 'wet lab' days. Students without appropriate PPE will not be allowed in the lab
- **3-ring binder** for storing lab handouts
- **Calculators** will be used in most labs and need to have log, anti-log, and exponential functions.
- **LABORATORY SAFETY 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, etc.).

Additional Resources

- **Drop-in office hours and help sessions:** I will have regular office hours; please make use of this time! The schedule can be found on Learn in the Course Information folder and at the top of this syllabus.
- **Appointments:** If you would like to discuss something in person or have a problem to address but cannot make my regular office hours, email me and we arrange some other time to meet.
- **Email:** You can also reach me via email; due to email volume, I ask that you include Chem123 in the subject line. If I haven't responded to you in 48 hours, consider sending a follow-up email as your first email may have been buried in a large volume of emails.
- **STEM center:** UNM-Valencia provides tutoring and faculty mentorship to help students achieve success in STEM courses. You may use their facilities for individual and/or group tutoring sessions, both on an appointment and walk-in basis. Additionally, I spend two hours there each week to provide help and answer questions. Please visit their website for hours of operation and additional contact information (<http://vcstem.unm.edu>); the STEM center is located in the Learning Resource Center, room 108.

CHEM 123 Course Learning Outcomes

At the end of this course, you should be able to:

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

Class Policies

Late assignments and make-up policy: Post- and pre-lab assignments will not be accepted late. Likewise, missed labs cannot be made up. I do drop your lowest lab assignment score (post- and pre-lab).

Grades will be posted on UNM Learn.

~310 pts	Experiments (30 pts each, ~5%) and Activities (pts vary)
10 pts	Pre-lab Questions and Procedures
20 pts	Data/Observations and Post-Lab Questions
100 pts	Formal Poster Presentation (~15%)
45 pts	First draft of poster (due Oct 27th)
45 pts	Final draft of poster for printing (due Nov 17th)
10 pts	Formal poster presentation (Dec 1st)
100 pts	Final Exam

The exam will consist of three components: a question/answer component, basic measurements, and developing a procedure based on previous labs. More information will be posted closer to exam time.

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.

Campus policy reminders

Equal Access Services: If you have a documented disability or psychological/medical condition that may affect your performance in this class, please register with Equal Access Services as soon as possible so I can provide your accommodations in a timely manner. EAS can provide a quiet place to take exams, additional time, and additional services if there is a documented need. For more information, please see their website at <http://www.unm.edu/~vcadvise/equalaccess.htm>.

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 coursework 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.

Depending on the severity of the offense, students caught cheating may receive a zero on the assignment, be dropped from the course, or receive an 'F' in the course. Don't cheat.

Topic Schedule for Fall 2015

Any changes will be announced via UNMLearn/Email

WEEK	CHEM 123L Schedule	Required
wk 1 Aug 18	How to Keep a Lab Notebook Schedule & Syllabus Scientific Method – Popcorn Activity	Complete online safety quiz before wk 2
wk 2 Aug 25	Basic Laboratory Safety, Measurements, Significant Figures <i>(Turn in at the end of lab)</i> Worksheet: Measurements, Graphing	- Lab coat, goggles, closed-toe shoes -Lab ntbk with completed pre-lab
wk 3 Sept 01	The Floating Egg Problem <i>Turn in completed Measurements Worksheet (wk 2)</i>	- Lab coat, goggles, closed-toe shoes -Lab ntbk with completed pre-lab
wk 4 Sept 08	Nomenclature Worksheet <i>Turn in completed Floating Egg Lab (wk 3).</i>	- Lab ntbk with completed pre-lab
wk 5 Sept 15	Chemical Reactions of Copper and Percent Yield <i>Turn in completed Nomenclature Worksheet (wk 4).</i>	- Lab coat, goggles, closed-toe shoes -Lab ntbk with completed pre-lab
wk 6 Sept 22	Chemical Reactions <i>Turn in completed Copper Reactions (wk 5).</i>	- Lab coat, goggles, closed-toe shoes -Lab ntbk with completed pre-lab
wk 7 Sept 29	Gas Stoichiometry: The Automobile Airbag Part 1: Discuss formal presentation, Library Research, Develop Hypothesis <i>Turn in completed Chemical Reactions (wk 6).</i>	-Lab ntbk for note taking At the end of lab time, submit: a hypothesis and brief procedure for the Auto Airbag experiment
wk 8 Oct 06	No lab—FALL BREAK	n/a

wk 9 Oct 13	Gas Stoichiometry: The Automobile Airbag Part 2: Perform Experiment	- Lab coat, goggles, closed-toe shoes - Lab ntbk & Spiral binder
wk 10 Oct 20	Hess's Law: A Study of the Combustion of Magnesium	- Lab coat, goggles, closed-toe shoes -Lab ntbk with completed pre-lab
wk 11 Oct 27	Atomic Spectra <i>Turn in digital first draft of Automobile Airbag Poster Presentation (wk 8)</i> <i>Turn in completed Hess's Law (wk 9)</i>	- Lab coat, goggles, closed-toe shoes -Lab ntbk with completed pre-lab
wk 12 Nov 03	Redox – Breathalyzer (Subject to Change) <i>Turn in completed Atomic Spectra (wk 11)</i>	- Lab coat, goggles, closed-toe shoes -Lab ntbk with completed pre-lab
wk 13 Nov 10	LDS/VSEPR/IMF Activity <i>Turn in completed Breathalyzer (wk 12).</i>	-Lab ntbk with completed pre-lab
Final Exam Nov 17	Lab Practical <i>Turn in completed LDS/VSEPR/IMF Activity (wk 13)</i> <i>Final digital draft of Airbag Poster Presentation.</i>	- Lab coat, goggles, closed-toe shoes -Lab ntbk
Wk 15 Nov 24	No lab—THANKSGIVING BREAK	n/a
Wk 16 Dec 01	Lab Poster Presentation	- Lab coat, goggles, closed-toe shoes
Final Exam Week no assignments		

Important university deadlines:

August 28	Last day to add course, change section, or change grade mode on LoboWeb
September 4	Last day to drop without a grade and with 100% refund
September 11	Last day to change grade mode in person using a form
November 6	Last day to drop without approval Student Services