# CHEM 111L-General Chemistry I Laboratory

| Instructor: | Dr. Isabel Nunez | Dr. Lisa Lever | Dr. Rick Krueger |
|---|---|---|---|
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| Office Hours: | M 3-4 pm; Th 12:30-1:30 pm | M 10-11; TTH 9:30-10:30; T 1-3 | M 10-11, 12-1:30; TR 9:40-10:40 |

**Class times:**
Section 1 (Nunez): Monday 10:00-10:50 (Smith 102C) **and** Monday 11:00-1:15 (Smith 401)
Section 2 (Lever): Monday 1:00-1:50 (Library 238) **and** Monday 2:00-4:15 (Smith 401)
Section 3 (Krueger): Monday 4:00-4:50 (Smith 102C) **and** Monday 5:00-7:15 (Smith 401)

**Course website:** http://faculty.uscupstate.edu/cbender
**Required Materials:** *Chemistry 111 Lab Manual* (revised for Spring 2017)
USB storage device for computer data or access to virtual storage online
1 pair of goggles stamped with Z87 (available in the bookstore)
1 long-form lab coat (see other requirements under **Safety/Dress code**)
CASIO *fx*-260solar calculator—these will **not** be provided. Only this calculator will be allowed for quizzes or exams.

**Objective:** Chemistry is an *experimental science*. Ultimately, chemical knowledge, laws, models, and theories are based on or must be consistent with experimental observations. In the current educational jargon, *experiential learning* is the very essence of chemistry. In chemistry lab, you will develop skills in observing and measuring phenomena, in interpreting these observations and data in order to convert them to scientific information, and in evaluating the validity of the results. The lab experience is much more than merely following a recipe: your task is to connect the experiments you do with important concepts such as *elements* and *compounds*, *the mole, electronic energy levels and electromagnetic radiation, chemical reactions and stoichiometry,* etc. so that you see the link between these concepts and their experimental foundations.

**Safety/Dress code:** In addition to goggles, ALL chemistry lab students must wear long pants AND long-form lab coats during lab. Additionally, you must wear shoes that cover your *entire foot* (thus, no sandals, no clogs (heel is exposed), and NO ballet shoes (which leave significant portions of the top of your foot exposed to chemical spills and glassware breakage)). If religious beliefs prevent the wearing of long pants, consult the instructor. If you arrive with inappropriate footwear/clothing, you will not be allowed to start lab until you have corrected the situation. Note that even if YOU are finished with the experiment or are only doing calculations, if you are in the lab, goggles, long pants, appropriate shoes, and a lab coat must be worn.

**Come to lab prepared:** Read the lab manual, answer the prelab questions, view the appropriate ChemPages modules, and study the calculations required in the lab exercise. There will be a short prelab quiz before each lab (the lab instructors may give these quizzes in recitation at their discretion). During the lab period you will be recording observations and measurements on the data sheets in your lab manual. Remember to bring your calculator and USB or other computer storage device to lab.

**Auditing a course:** Due to safety concerns, students are not able to audit the lab course. See instructor for details.

**Recitation:** The hour preceding the experimental part of lab is called recitation and in this time your instructor will cover theoretical concepts behind the experiment, safety information, and important guidelines in order to perform the experiment. You are required to attend recitation **before** each lab session. ***If you do not attend recitation, you will not be allowed to attend the lab, resulting in a zero for that lab.***

**Attendance:** All experiments are expected to be performed (see schedule in this syllabus). ***There is no make-up lab or make-up quiz so it is imperative that you attend every lab section and recitation,*** however your one lowest lab report grade will be dropped. You will still be responsible for this material on any lab exams or quizzes. If you miss a recitation/lab session, you are allowed to make it up in another lab section that same day—assuming you get the professor's permission beforehand ***and*** there is room (there is a 24 student maximum in General Chemistry Labs).

**Can I go to another lab section to perform my lab?** Occasionally something comes up and you have a temporary need to perform your lab in a different section than your normal one. That's fine as long as there is room AND you get *prior* permission from the lab instructor. Use the information on the first page of this syllabus to contact both YOUR teacher **and** the instructor of the lab section you want to attend (in the same email) asking to attend a different lab section that week. You still must attend the recitation before lab (see above for consequences of not attending recitation). To avoid a late penalty, you are still responsible for submitting the lab report due that day to your own lab instructor on or before the appropriate lab time.

**Grading:** The lab grade will count as 25% of your Chemistry 111 grade. The lab grade will be based on your lab reports, quizzes, written abstracts, and the lab midterm and final exam. Below are some criteria on which your lab reports will be graded:

1. All data/observations are obtained and recorded in the appropriate location.
2. All questions in the lab report are answered clearly and accurately. Responses requiring more than a couple of words are written in sentences that are logical and conform to conventional rules of grammar.
3. All calculations are performed accurately and presented in a clear manner with the appropriate significant figures and units.
4. All work is legible.
5. The report is turned in on time.
6. **The work and experimental data presented is your own.** The answers to questions must be written in your own words. You must perform all calculations. Any copying or plagiarism will incur consequences. (See the USC Upstate Student Handbook for details.) In addition, do not let your work be copied.

**Academic Honor Code:** Section II.B. Cheating. Though a nearly ubiquitous problem on college campuses around the country, cheating will not be tolerated in any form. Please pay particular attention to all parts in the student handbook (listed in the lecture syllabus). Students found to be cheating will be referred to the Dean of Students for appropriate sanctions. This action could result in the expulsion from class with a failing grade. Students who admit responsibility or who are found responsible through the Student Code of Conduct will receive the appropriate grade determined by the professor, which may include an X to signify academic dishonesty. Grades with an X are not subject to grade forgiveness.

**Deadlines:** Unless otherwise announced by the lab instructor, lab reports are due at the **beginning** of the following lab meeting (1 week); a 10% penalty will apply for late reports (up to one week late), and ***no reports will be accepted more than one week late***. If you miss a lab, the previous

week's lab is still due on time. Near the end of the semester, normal deadlines may be shortened; all reports must be submitted by the last day of classes, Monday April 24.

**Students with disabilities:** USC Upstate supports the ongoing development of an accessible university that embraces diversity through educational programming, services, resources, and facilities that are usable by all members of the campus community. In keeping with University policy, any student with a disability who requests academic accommodations should contact Disability Services at 503-5199 to arrange an appointment with a Disability Services staff member. Students are encouraged to seek an appointment as early in the semester as possible, as accommodations are not provided retroactively. Students should visit www.uscupstate.edu/studentaffairs/disabilityservices for more information. *Students with disabilities please notify me of special needs within the first week of classes.*

**CHEM 111 Lab Schedule Spring 2017**

| Lab date | Experiment | Work to be turned in at the beginning of lab |
|---|---|---|
| Jan 9 | No Lab first week | N/A |
| Jan 16 | MLK Day—No Lab | N/A |
| Jan 23 | 0. Safety and Spreadsheets | Evidence of passing Flinn Safety quiz |
| Jan 30 | 1. Basic Lab Techniques | Spreadsheet exercise, Safety exercise |
| Feb 6 | 2. Paper Chromatography | Expt. 1 report |
| Feb 13 | 3. Physical Properties | Expt. 2 report + abstract Expt. 2 |
| Feb 20 | 4. Hydrogen Emission | Expt. 3 report |
| Feb 27 | 5. Determination of the Atomic Mass of Mg | Expt. 4 report |
| **Mar 6** | **Spring Break—No Lab** | **N/A** |
| Mar 13 | 6. Periodic Properties | Expt. 5 report |
| **Fri. Mar 17** | **LAST DAY TO DROP** | **LAST DAY TO DROP** |
| Mar 20 | 7. Molecular Shapes *+ Midterm exam on Expts 1,2,3,4—given in recitation* NEW DATE! | Expt. 6 report |
| Mar 27 | 8. Alum from Aluminum Cans ~~*+ Midterm exam on Expts 1,2,3,4—given in recitation*~~ | Expt. 7 report |
| Apr 3 | 9. Solutions and Titrations (week #1 only) | Expt. 8 report + abstract Expt. 8 |
| Apr 10 | 10. Chemistry of Copper | Expt. 9 report |
| Apr 17 | 11. Thermochemistry & Check-out | Expt. 10 report |
| Apr 24 | Final exam Expts. 5,6,7,8,9 | Expt. 11 report + Portfolio of all graded lab work |

| Experiment/Exam | Work | Possible Score | Your Score |
|---|---|---|---|
| 0. Safety | Safety exercise | 10 | |
| | Spreadsheet | 20 | |
| 1. Basic Lab Techniques | Prelab quiz | 10 | |
| | Lab report | 40 | |
| 2. Paper Chromatography | Prelab quiz | 10 | |
| | Lab report | 40 | |
| | Abstract | 50 | |
| 3. Physical Properties | Lab report | 40 | |
| 4. Hydrogen Emission | Prelab quiz | 10 | |
| | Lab report | 40 | |
| 5. Atomic Mass of Mg | Prelab quiz | 10 | |
| | Lab report | 40 | |
| 6. Periodic Properties | Prelab quiz | 10 | |
| | Lab report | 40 | |
| 7. Molecular Shapes | Prelab quiz | 10 | |
| | Lab report | 40 | |
| 8. Alum | Prelab quiz | 10 | |
| | Lab report | 40 | |
| | Abstract | 50 | |
| 9. Solutions and Titrations | Prelab quiz | 10 | |
| | Lab report | 40 | |
| 10. Chemistry of Copper | Prelab quiz | 10 | |
| | Lab report | 40 | |
| 11. Thermochemistry | Prelab quiz | 10 | |
| | Lab report | 40 | |
| Check-out | Check-out assignment | 10 | |
| Portfolio | Portfolio of graded work | 30 | |
| Midterm exam | Experiments 1-4 | 160 | |
| Final exam | Experiments 5-9 | 200 | |
| Total of all points | | 1070 | |
| | | | |
| **Points Counted** (drop your lowest lab report by subtracting from your "Total of all points") | | 1030 | |
| **Grade** | Divide your Points Counted by 1040 and multiply by 100 | | |

**Portfolio:** The portfolio will be submitted on the last day of class and will include all graded lab assignments (do not turn in lecture assignments!). By keeping assignments together it will act as an aid with which you can better study for the lab midterm and final exam.

*Consult a physician if you are pregnant or have any other medical condition which might render you susceptible to the chemicals used in this laboratory.*

**Disclaimer:** The instructor may modify this course and syllabus to accommodate unforeseen circumstances.