

## General Chemistry and Qualitative Analysis Laboratory

Chemistry 112R/112L Schedule Spring 2017	
Lab times	Wednesday (1) 10:00-1:15 Omoike Wednesday (2) 2:00-5:15 Lever Thursday (3) 1:40-4:55 Omoike Friday (4) 1:00-4:15 Mueller Labs meet in Smith 401
Recitation times	Monday (1) 11:00-11:50 Bender Monday (2) 2:00-2:50 Nunez Tuesday (3) 1:40-2:30 Bender Wednesday (4) 1:00-1:50 Bender Recitations meet in Smith 102C

Instructors	Office	Phone	Email	Office hours
Lisa Lever	Smith 409	503-5713	<a href="mailto:llever@uscupstate.edu">llever@uscupstate.edu</a>	M 10:00-11:00, TTh 9:30-10:30, T 1:00-3:00, and by appointment
Anselm Omoike	Smith 408	503-5756	<a href="mailto:aomoike@uscupstate.edu">aomoike@uscupstate.edu</a>	MTW 9:00-10:00, Th 8:00-10:00, and by appointment
Chad Mueller	Smith 220	503-5734*	<a href="mailto:cmuelle2@uscupstate.edu">cmuelle2@uscupstate.edu</a>	F 12:00-1:00 and by appointment
Chris Bender	Smith 415	503-5755	<a href="mailto:cbender@uscupstate.edu">cbender@uscupstate.edu</a>	M 10:00-10:55, 12:00-1:00, W,F 10:00-11:30 and by appointment
Isabel Nunez	Smith 220	503-5734*	<a href="mailto:inunez@uscupstate.edu">inunez@uscupstate.edu</a>	M 3:00-4:00, Th 12:30-1:30, and by appointment

\*(or leave message at 503-5725)

**Chem 112L Web site:** <http://faculty.uscupstate.edu/llever>

**Required materials:** USC Upstate Chemistry 112 Lab Manual (revised for Spring 2017)  
USB flash drive, Casio fx-260 calculator (same as for lecture)  
1 pair of goggles stamped with Z87.1, lab coat (both available in the bookstore)  
Lab notebook with bound pages for the qual experiments

**Objective:** Chemistry is an *experimental science*. Ultimately, chemical knowledge, laws, models, and theories are based on or must be consistent with experimental observations. In chemistry lab, you will develop skills in using the tools of the trade, in observing and measuring phenomena, in interpreting these observations and data in order to convert them to scientific information, in performing calculations using spreadsheets, in evaluating the validity of the results, and in communicating results through scientific writing.

**Safety:** All students are required to wear goggles and a lab coat at all times in lab. Even if YOU are done with lab or are only doing calculations, if you are in the lab, goggles and a lab coat must be worn. You are responsible for having your goggles and lab coat at the beginning of each lab period. They may be locked in your locker between labs. Long pants (all the way down to your ankle) must be worn at all times. Shoes that cover your entire foot must be worn at all times, thus sandals, clogs, and ballet shoes are unacceptable in the lab. If you arrive for lab inappropriately dressed, you will not be allowed to start lab until you have corrected the problem.

**Come to lab prepared:** Come to lab prepared by having read the experiment in the lab manual and the appropriate background material in your textbook. Answer all prelab questions in the lab manual. Review the appropriate ChemPages modules.

**Attendance:** There are no make-up labs in this course. If a lab is missed, it can only be made up by attending another lab section that same week. To make up a missed lab, contact the instructor of the lab section you wish to attend to be sure there will be space available in the lab. Let your lab instructor know which section you will be attending. You are responsible for material you missed due to absence.

### **Lab experiments 1-3 and 5-7:**

**Lab reports and abstracts:** Unless otherwise announced by the lab instructor, completed lab reports and abstracts will be collected at the beginning of the lab period the following week. Late lab reports and abstracts will receive a 10% penalty, **and no work will be accepted more than one week late**. In order to prepare for the final exam, keep your graded work, including reports and quizzes in a portfolio to be turned in at the final exam.

Below are some criteria on which your work will be graded.

1. All experiments are conducted in a safe manner.
2. All data/observations are obtained and recorded in the appropriate location.
3. 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.
4. All calculations are performed accurately and presented in a clear manner with the appropriate significant figures and units.
5. All work is legible.
6. The report is turned in on time.
7. **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.

**Grading:** Each lab report for experiments 1-3 & 5-7 will be worth 50 points. An abstract (worth 50 points) on Expt. 3 will be required. A final exam (worth 200 points) will be given on experiments 1-3 and 5-6 during the last lab period. Prelab quizzes will be given on experiments 1-3 & 5-7.

### **Lab experiment 4, Qualitative Analysis:**

**Lab notebooks:** Students must bring a "bound" (sewn) notebook to each lab period. Students will not be permitted to begin the qual lab without this notebook - they are rather expensive if purchased at the last minute at the campus bookstore! A notebook from another lab course may be used if there are sufficient unused pages. Lab notebooks must be checked and initialed by the instructor before leaving lab each week.

**Lab quizzes:** Two quizzes will be given on the qual experiment: Qual Quiz 1 is on part 1 & 2 cations and Qual Quiz 2 is on part 3 & 4 cations. These quizzes will be given during recitation.

**Grading:** Students will be graded on the identification of the qual unknowns, the quizzes, and the lab notebook.

Chem 112 Lab Schedule Spring 2017		
Date	Experiment	Work due or quiz
Jan. 11-13	0 Safety, check-in	
Jan. 18-20	1 Colors and Reaction Rates	Spreadsheet exercise, safety quiz, prelab quiz
Jan. 25-27	2 Chemical Equilibria	Expt. 1 report, prelab quiz
Feb. 1-3	3 $K_{sp}$ of Lead(II) Iodide	Expt. 2 report, prelab quiz
Feb. 8-10	4 Qualitative Analysis - Cations group 1 & 2	Expt. 3 report
Feb. 15-17	4 Qualitative Analysis - Cations group 1 & 2	
Feb. 22-24	4 Qualitative Analysis - Cations group 3 & 4	
Mar. 1-3	4 Qualitative Analysis – General cation unknown	Qual quiz 1*, Expt. 3 Abstract
Mar. 8-10	<b>Spring Break</b>	
Mar. 15-17	4 Qualitative Analysis - Anion unknowns	
Mar. 22-24	4 Qualitative Analysis - Salt unknown	Qual quiz 2*
Mar. 29-31	5 $pK_a$ of a Weak Acid	Prelab quiz
Apr. 5-7	6 Electrolysis	Expt. 5 report, prelab quiz
Apr. 12-14	7 Organic Chemistry: Molecular Modeling	Expt. 6 report, prelab quiz
Apr. 19-21	Check-out, <b>lab final exam</b>	Expt. 7 report, Portfolio
*Qual quizzes will be given in recitation		

**Disclaimer:** The instructor reserves the right to make adjustments in the syllabus and schedule as necessary.

*March 17: Last day to withdraw without penalty*

*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.*

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

**Grading summary:**

<b>Assignment</b>	<b>Max. points</b>	<b>Your grade</b>
Safety Quiz	10	
Spreadsheet exercise	20	
Prelab quiz Expt. 1	10	
Expt. 1 Colors and Reaction rates report	50	
Prelab quiz Expt. 2	10	
Expt. 2 Equilibrium report	50	
Prelab quiz Expt. 3	10	
Expt. 3 Ksp report	50	
Abstract on Expt. 3	50	
Prelab quiz Expt. 5	10	
Expt. 5 pKa of a Weak Acid report	50	
Prelab quiz Expt. 6	10	
Expt. 6 Electrolysis report	50	
Prelab quiz Expt. 7	10	
Expt. 7 Organic Modeling report	50	
Group 1 & 2 cation unknown	100	
Group 3 & 4 cation unknown	100	
General cation unknown	100	
2 Qual anion unknowns @ 50 points each	100	
1 Salt unknown @ 50 points each ion	100	
Qual quiz 1 Group 1 & 2 cations	100	
Qual quiz 1 Group 3 & 4 cations	100	
Qual lab notebook	30	
Final exam	200	
Portfolio	20	
Check out	10	
<b>Total (25% of course grade)</b>	<b>1400</b>	
To determine your grade in lab, add all the points you have accumulated, divide by the total possible points and multiply by 100.		