



# Pima Community College

## West Campus

### CHM 151IN Laboratory Schedule and Supplement Fall 2012

**Course Information:**Course Prefix/Number: **CHM 151IN Lab**Course Title: **General Chemistry I Laboratory**Semester: **Fall 2012**CRN (Section Code): **12804, 12805**Class Days/Times: **M or W 8:40-11:20 a.m.**Site/Room: **Sci K-221****Instructor Information:**Name: **David A. Katz**Office: **E-235 (Tortolita Building)**US Mail: **Pima Community College – West Campus  
2202 W. Anklam Rd.  
Tucson, AZ 85709-0270**Phone/Voice Mail: **520-206-6044**E-mail: **dkatz@pima.edu****Office hours: MW 1:30-2:30 p.m.; TTh 10:30-11:30 a.m., 2:30-3:00 p.m.  
If I am not in the office, I may be in the laboratory****Instructional Materials:****Laboratory Manual:** Selegue, Thomas and David A. Katz, Editors, **General Chemistry in Action**, 2<sup>nd</sup> Edition, Hayden McNeil, 2011Additional experiments will be available for download from the CHM 151 course page at <http://www.chymist.com/chem 151.html> There is no cost to download the experiments.**A Note about the laboratory manual:**The laboratory manual is designed to be used for both **CHM 151 and CHM 152**. You should not be required to purchase an additional laboratory manual if you continue with the chemistry course at this campus.**Online Homework and Laboratory Program:** Mastering Chemistry (program is included with textbook) The laboratory safety test and prelab assignments and quizzes will all be administered through the Mastering Chemistry program.**Notes regarding the online homework system:**

Mastering Chemistry, as packaged with the textbook, contains the complete textbook in eBook form. If you purchase Mastering Chemistry from another source, it may not contain the eBook. You will still be able to join the class and do all the assignments for the course.

**Instructional Materials: (continued)**

Mastering Chemistry is valid for **two years** from the date of activation. It can be used with any chemistry course (including organic chemistry) that utilizes the Mastering Chemistry system. You should not be required to purchase any other online homework system at additional cost for CHM 151-152.

**Laboratory Notebook:** We will be using an electronic online laboratory notebook. No purchase is necessary.

## CHM 151IN Laboratory Schedule for Fall 2012

Week of	Days	Experiment
Aug 22 - 24	Wed-Fri	Meet classes, distribute lab schedules. No experiment
Aug 27 – 31	Mon-Fri	Safety Lecture (NOTE: Safety test is given online. See information under laboratory safety.) Check-in Review of lab policies, proper lab techniques, and use of laboratory balances. How to write chemical formulas and equations using Word How to construct data tables using Word or Excel How to construct graphs using Excel
Sept 4– Sept 10	Tues-Mon	Extraction and Analysis of Plant Dyes: (Lab manual, page 1) Extraction and Filtration of the Dye and Analysis of the Dye Using Thin-layer Chromatography Analysis of the Dye Using Absorption Spectrophotometry Analysis of the Dye by Observation of Acid-base Properties
Sept 11 – 17	Tues-Mon	Determination of an Empirical Formula (Lab manual, page 7)
Sept 18 – 24	Tues-Mon	Precipitation Reactions and Pigments: (Lab manual, page 11) Precipitation Reactions Making a Pigment
Sept 25 – Oct 1	Tues-Mon	Determination of the Half-Life of Potassium-40 (Experiment to be downloaded from the CHM 151 page of the web site.)
Oct 2 - 8	Tues-Mon	Recycling a Metal into a Chemical Compound: The Preparation of Alum (Lab Manual, page 21) Homework: Growing an Alum Crystal
Oct 9 – 15	Tues-Mon	Determination of Ascorbic Acid in a Vitamin C Tablet (Lab Manual, page 27) Standardization of the Base and Determination of Ascorbic Acid by Acid-base Titration Determination of Ascorbic Acid by Redox Titration
Oct 16 – 22	Tues-Mon	Determination of Iron in a Multivitamin Tablet (Lab manual, page 51)
Oct 23 – 29	Tues-Mon	Measurement of the Heat Capacity of a Metal (Lab manual, page 59) one metal only. Three trials AND Measurement of Enthalpies of Reaction (Lab manual, page 63) Measuring the Molar Heat of Neutralization only. Three trials.
Oct 30 – Nov 5	Tues-Mon	Heat of Combustion of Magnesium (Lab Manual, page 69)
Nov 6 - 12	Tues-Mon	No lab this week. Veterans Day is Nov 12 – College closed
Nov 13 – 19	Tues-Mon	Modern Materials: (Experiments to be downloaded from the CHM 151 page of the web site.) Liquid Crystals Magnetic Fluid
Nov 22 -25	Thurs-Fri	Thanksgiving Holiday – College closed
Nov 26 – Dec 30	Mon-Fri	Preparation of Synthetic Rubber (includes Preparation of a rubber ball from latex) (Experiment to be downloaded from the CHM 151 page of the web site.)
Dec 3 - 7	Mon-Fri	Final Lab Checkout
Dec 10 - 14	Mon-Fri	Final Exam week – No labs

## Laboratory Policies

**This is an integrated class, which means that your laboratory grade is part of your final course grade. You must pass both the lecture portion and the laboratory portion to pass the course.**

You are expected to read each experiment and check the safety precautions for all chemicals used in the experiments before coming to class. A pre-lab assignment will be required. Your laboratory instructor will provide more information on these requirements.

If you are not prepared for lab, you may be asked to leave and will receive a grade of zero for that laboratory experiment.

Laboratory reports follow the format outlined by your lab instructor. (A suggested laboratory report format is given later in this syllabus.) Data analysis calculations, graphs, and questions must be completed for each laboratory report.

Reports are due no later than **one week** after the experiment is completed.

Laboratory reports are graded based on neatness, completion of introductory information, completion and presentation of data, sample calculations, summary of results and conclusions, and answers to data analysis questions.

Laboratory reports may be graded on a 10 point, 25 point, 100 point, or other point scale, by your laboratory instructor.

Missed or incomplete experiment reports will be graded as a zero.

Questions based on the laboratory experiments and calculations may appear on exams and quizzes in the lecture portion of this course. You are responsible to know how each laboratory experiment works (theory and general procedure) and how to do the calculations.

## LABORATORY SAFETY

Laboratory safety is a major component of working in a chemical laboratory. At the beginning of the semester, you are given a safety lecture in the laboratory. The safety information is also printed in the General Chemistry in Action laboratory manual.

**The laboratory safety test** is administered online through the Mastering Chemistry program. The safety test consists of 30 questions and will be timed for 40 minutes. You must obtain a score of 100% in order to pass the safety test. You will have 3 chances to pass the safety test with a grade of 100% in the week between the safety lecture and up to 48 hours before your first laboratory experiment. If you do not pass the safety test, you will not be permitted to work in the laboratory and will receive a grade of zero for the first experiment. You will have another 2 chances to pass the safety test in the following week.

You must abide by the safety rules during the semester. This includes wearing safety goggles when working with chemicals, wearing closed shoes, not sandals or flip-flops, appropriate dress, and following proper methods of chemical disposal. Non-compliance may result in you being asked to leave the laboratory with a grade of zero for that day.

# PRE-LABORATORY ASSIGNMENTS/OR QUIZZES

You are required to complete pre-laboratory assignments or pass pre-laboratory quizzes. Your laboratory instructor will explain his/her policy for pre-laboratory assignments. Pre-laboratory quizzes will be administered online through the Mastering Chemistry program.

Pre-laboratory quizzes will consist of questions about the purpose and/or the background of the experiment, laboratory safety as it relates to the experiment, the procedure, and calculations necessary for the experiment.

You must pass the pre-laboratory quizzes at least 48 hours before your scheduled laboratory class in order to be permitted to work in the laboratory.

## THE LABORATORY NOTEBOOK

### INTRODUCTION

Chemistry is an experimental science. As such, much of the progress of chemistry depends on the communication of scientific data and experimental results between researchers. It is important, therefore, that a course in chemistry should teach how to accurately record scientific data and experimental results through the use of the laboratory notebook and laboratory reports.

### THE LABORATORY NOTEBOOK

The laboratory notebook is meant to be a permanent record of the experimental data and observations that one measures or observes during experiments. During the laboratory period all data and observations are to be recorded **DIRECTLY** into the laboratory notebook and **NOT** on separate sheets of paper nor the data pages of the experiment or laboratory manual.

The laboratory notebook is meant to be used as a **WORKBOOK**, it is functional, not pretty. It will contain both satisfactory and unsatisfactory results, errors and corrections, calculations, graphs, and other information from the laboratory experiments. Since all entries are made in the laboratory, it is expected that the information be orderly, legible, and clearly labeled, sufficient so that the information is comprehensible to someone with training comparable to your own. The notebook will not be graded on its appearance, it will be graded mainly on its content.

This course will be using an electronic, online laboratory notebook. **The suggested guidelines for keeping the laboratory notebook are given in Appendix G of the General Chemistry in Action laboratory manual.**

## LABORATORY REPORTS

**CHM 151 is a science and engineering major class.** You are expected to be able to write an organized laboratory report.

A laboratory report is the means by which a researcher or research team communicates the result of an experiment or series of experiments to his/her colleagues. It is a summary of the important information which a researcher recorded in his/her laboratory notebook with detailed explanations of the results. Such reports are often communicated as research papers at scientific meetings or are published in scientific journals.

The laboratory report is the means by which your instructor can determine your comprehension of the scientific principles involved in an experiment as well as to evaluate your ability to make careful measurements and observations, to calculate numerical results, and to organize your experimental data.

A single laboratory report is required for each experiment. If an experiment is divided into two parts, the laboratory report is for the entire experiment.

**ONE WEEK** after you have completed each experiment, a laboratory report must be handed in to your instructor. **The report should be printed on 8½ x 11 inch paper** and stapled together with a single staple in the upper left-hand corner. **All graphs (when required) must be drawn on graph paper and clearly labeled or, preferably, constructed using a program such as Excel.** The report must be written in the third person (do not use: I, me, my, we, our, etc.) and should **follow the suggested guidelines given in Appendix H of the General Chemistry in Action laboratory manual.**

**Your laboratory instructor may require individual laboratory reports or a single team report.** If the laboratory report is a team effort, all members of the team should contribute to the report.

If your laboratory reports are individual reports, members of the same team will have identical data, but the laboratory reports are should not be identical.

The laboratory report is part of your laboratory experiment. The experiment is **not** considered to be complete until the laboratory report has been received.

**LATE LABORATORY REPORTS** will be down-graded based on the number of days the report is late. Reports that are more than one class late will be graded on a pass/fail basis only (pass = "D"). Reports more than two classes late may not be accepted, at your instructor's discretion, and you may be assigned a grade of "zero" for that experiment. (If you are absent on the day a laboratory report is due, email the report to your instructor or take the report directly to your instructor on the day you return to school or leave it in his/her mailbox in the department office building.)

**INCOMPLETE LABORATORY REPORTS** will be graded "as is" with points deducted for missing sections.