

Course Title/Number	<b>Principles of Chemistry I Laboratory / CHM 217, Sections 101 &amp; 102 (CRN1386 &amp; 1387)</b>
Semester/Year	Fall 2016
Days/Time	M 2:00 – 4:50      2 credit hours
Location	Pre-Lab Lecture, 465 Science Hall, Laboratory 474/476 Science Hall
Instructor	David Neff
Office	Regular office hours to be held in chemistry dept. library room 460 Science Hall. For drop-in visits, my main research lab/office is 107 BBSC (across 3 <sup>rd</sup> Ave bridge from Science Hall).
Phone	304-696-3569
E-Mail	dneff@marshall.edu
Office hours	Monday 12-1:30, Friday 12– 2:00 (chemistry dept. library) Drop-in visits are welcome to 107 BBSC, or make appointment by email.
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to <a href="http://www.marshall.edu/academic-affairs">www.marshall.edu/academic-affairs</a> and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to <a href="http://www.marshall.edu/academic-affairs/?page_id=802">http://www.marshall.edu/academic-affairs/?page_id=802</a>  Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

#### **Required Texts, Additional Reading, and Other Materials:**

1. Principles of Chemistry I Laboratory Manual, 2016-2017 Ed., Van Griner.
2. Non-programmable calculator for quizzes and exams
3. Indirectly vented chemical safety goggles for laboratory. Can be bought at AXE (Alpha Chi Sigma) on chem. floor of science bldg. first day of class.
4. Bound notebook (not spiral) – in notebook does not have page numbers, you will write these as you go
5. Combination lock for your drawer (optional)
6. A roll of paper towels for cleanup, spills, etc.
7. Lab coat or apron to protect your clothes is optional.

#### **Course Description:**

A laboratory course that demonstrates the application of concepts introduced in Chemistry 211.  
2.0 credit hours (co-requisite pre-requisite: CHM 211)

#### **Course Objectives**

1. To introduce basic chemical laboratory skills emphasizing careful, quality data collection.
2. To interpret experimental data by connecting laboratory observations with underlying principles and concepts learned from lecture materials.
3. To learn and develop basic scientific communication skills through writing lab reports.
4. To learn and practice good laboratory safety procedures.

**Course Outcomes:**

Course Student Learning Outcomes	How students will practice each outcome in this Course	How student achievement of each outcome will be assessed in this Course
Students will know and follow safety rules in the chemical laboratory.	-Safety training at MU Online -reading laboratory manual -reading ACS online safety manual	-online quiz -midterm and final exams -instructor's observation
Students will learn how to properly use and care for laboratory equipment.	-reading laboratory manual -prelab lecture -attention to detail during laboratory experiments	-lab reports -instructor evaluation
Students will learn how to record and communicate laboratory experiments and results.	-reading laboratory manual -prelab lecture -write-up during laboratory experiments	-lab notebook -lab reports
Students will apply concepts introduced in chemistry lecture (CHM 211).	-reading laboratory manual -laboratory experiments -laboratory calculations	-pre- and post-lab questions -midterm and final exams

**Format of the Course**

1. The departmental safety training and quiz must be completed before the second lab meeting. Safety training can be accessed through MUOnline.
2. Pre-lab questions are due at the beginning of the lab session.
3. During the first 30-45 minutes of class, we will have a pre-lab quiz followed by a discussion of relevant information needed for the lab being conducted on that day. It will be helpful to read the lab and relevant information from your textbook to prepare for the quizzes.
4. The bound notebook is for the immediate recording of all experimental operations and observations made during the laboratory period. Follow the 'Maintaining a Lab Notebook' guidelines from your lab manual and use only permanent ink to write in the lab notebook. If you make a mistake, draw a single line through the mistake and continue writing. Lab notebooks will be collected and graded twice during the semester so bring it with you and have it ready to be graded at each lab session.
5. Lab reports are due the week following the completion of the laboratory at the beginning of the period. **Lab reports will not be accepted that are late.**
6. Keep the lab clean!

**Grading Policy**

Assignment	Points
Pre-lab Questions	50
Quizzes (drop lowest)	150
Post-lab Reports (drop lowest)	250
Midterm Exam	200
Final Exam	200
Lab Notebooks	50
Professor/TA Evaluation	50
Attendance	50

Grading Scale: A 900-1000 B 800-890 C 700-790 D 600-690 F < 600

The Department of Chemistry policy requires that all students complete at least 75% of laboratories. Students will receive a grade of "F" for missing 4 or more laboratories, whether they are excused or unexcused absences.

## Attendance Policy

Attendance is mandatory. Only work missed from excused absences can be made-up. To make-up an exam or laboratory, you will need to obtain an excused absence through the office of Student Affairs. All excused absences must be obtained **as soon as possible**.

## Safety Policies

1. A signed copy of the laboratory questionnaire stating that you have read and understand the required safety measures must be completed before you are permitted to work in the laboratory.
2. **You must pass the online safety quiz (MUOnline–Lab Safety–CHM217–Fall 2016) before the beginning of the second lab period. Students who have not passed the quiz will be ineligible to participate in the laboratory.**
3. Follow the instructions provided in the lab manual carefully. Only modifications to the lab given by the instructor or teaching assistants are permitted.
4. Protective eye goggles must be worn in the laboratory at all times. Failure to do so will result in dismissal from lab. Wearing of contact lenses in lab is strongly discouraged.
5. **Clothing: Slacks or dresses cut below the knee must be worn. Shoes covering the bridge of the foot and toes must be worn in the laboratory. Avoid wearing very loose or unnecessary clothing. Rings should be removed.**
6. Know the location of all safety equipment in the laboratory.
7. All injuries, no matter how trivial, must be reported to the instructor immediately.
8. No food or beverages are permitted in the lab.
9. Cell phones, tablets, and other digital devices are not permitted to be accessed during laboratory time.
10. ACS online safety manual (link checked and active 8-2016):

<http://www.acs.org/content/dam/acsorg/about/governance/committees/chemicalsafety/publications/safety-in-academic-chemistry-laboratories-students.pdf>

## Other Policies

1. Cell phones cannot be used, or out, during exams.
2. Sharing calculators during exams is prohibited.
3. During quizzes, all materials necessary will be provided to you except a pencil and calculator. You may NOT use your own paper, etc.
4. Please turn off cell phones during class, failure to do so may result in dismissal from lecture.
5. Class announcements may be made via email to your university email address and it is your responsibility to check that account on a regular basis.

**Schedule:**

<b>Week</b>	<b>Expt. # - Activities</b>
8/22	1 – Methods of Measurement, Part I – Determination of the Density of Water – H1 and H2 significant figures and dimensional analysis
8/29	1 – Methods of Measurement, Part II - Determination of Sugar in Soft Drinks & Graphing with Excel
9/5	<i>Labor Day, no lab</i>
9/12	2 – Separating the Components of a Heterogeneous Mixture
9/19	3 – Determination of the Percent Oxygen in Air
9/26	4 – Determination of an Empirical Formula
10/3	5 – Determination of Avogadro's Number & <b>Midterm Exam</b>
10/10	7 – Synthesis of an Alum
10/17	8- Reactions – complete expt. 7
10/24	13- Determination of Molar Mass
10/31	6 - Heat of Reaction and Heat of Solution
11/7	9 – The Titration of Vinegar
11/14	10 – Combustion! – Synthesis and Reactions of Oxygen
11/21	12 – Energy in a Peanut: Calorimetry & Lab Checkout
11/28	<i>Thanksgiving Break</i>
12/5	11 –Molecular Architecture and lab checkout – brief lab report to be finished during lab period
12/12	<b>Final Exam (during final exam week, time to be announced)</b>