

Syllabus: General Chemistry Lab CHE-120L-011

Monday 2:00-5:00

Instructor: Dr. PJ Ball

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Spring 2009

SC 422

Co-requisite: General Chemistry I Lecture

Please be aware that if you withdraw at any time from the lab, you must also withdraw from the lecture and if you withdraw at any time from the lecture, you must also withdraw from the lab.

Required Materials:

- 1) General Chemistry Lab Manual
- 2) Laboratory Record Book, Hayden McNeil Publishing
- 3) Safety goggles
- 4) Calculator: Cell phones may not be used as calculators

Course Description:

This is a laboratory course to accompany General Chemistry I. The experiments are designed to highlight basic principles of chemistry as well as chemical and physical properties of elements and compounds. The experiments are designed to familiarize students with basic chemistry laboratory techniques as well as how to keep accurate records of data and observations.

Experiment Schedule

<u>Date</u>	<u>Experiment</u>	<u>Pre-Lab</u>	<u>Report Sheet</u>
1/12	Check In & Intro to Meas.		
1/19	MLK Day: NO LAB		
1/26	Safety Quiz; Chromatography		p.63
2/2	Measurements (FD)	p.71	p.73-76
2/9	Empirical Formula of Zinc Iodide	p.55	p.57-58
2/16	Alum		p.103-104
2/23	Chemical Reactions (FI)	p.37	p.39-34
3/2	Exam 1		
3/9	Spring Break: NO LAB		
3/16	Acid Base Titration (FD)	p.13	p.15-17
3/23	Calorimetry/Hess's Law	p.27-28	p.29-32
3/30	Cycle of Copper (FFLR)	p.49	p.51-52
4/6	Titration of Bleach		p.109-110
4/13	Absorption Spectroscopy		p.5-7
4/20	Lewis/VSEPR Theory		p.83-91
4/27	Exam 2		

Attendance:

Attendance at ALL lab sessions is required. No lab will be excused. Make-up work will be arranged for legitimate medical problems or other extraordinary circumstances, at the discretion of the instructor. The student must be able to verify their excuse. There will be a maximum of two make-up labs for the semester. All absences beyond two, will result in a zero for the missed lab. In order to make-up the lab, the student is responsible for notifying the instructor within 24 hours of the absence. Failure to notify instructor of absences within 24 hours will result in a 0 for the missed lab. You are then responsible for scheduling a new lab time within one week of the missed experiment. It is YOUR responsibility to:

(1) look at the faculty assignments list outside the lab door or on the Blackboard site for the course to find a lab section in which you are able to makeup the lab (2) seek permission from the instructor to join his/her lab section, and (3) obtain a makeup lab form from the Blackboard site for this course, fill it out and bring it to me in advance of your makeup lab.

Laboratory Notebook/Report Expectations:

The lab record book is required for all experiments with the exception of the VSEPR lab. No laboratory manual pages are allowed at your bench during the experiment.

A detailed explanation of a complete notebook entry is given on pg. iv of the lab manual.

Before coming to lab, you will need to read the experiment and prepare the following in your laboratory notebook:

-Name, Date, and Title of the experiment (must be written at the top of a new page)

-Experimental Objective (complete sentences must be used)

-Safety Precautions

-Protocol (written on the left column of the record book)

-Answer any pre-lab questions (pg. numbers are given in the above experiment schedule)

While carrying out the experiment you will need to record the following:

-Procedure, data, observations (written on the right column of the record book corresponding to the protocol you prepared). List any deviations from the protocol, the exact amount of reagents used, and any observations. **You will turn in the yellow carbon copy of these pages before you leave.**

After the experiment, you are expected to complete the following:

Report Sheets-Complete the data sheets associated with the lab (pg. numbers are given above in the experiment schedule). Calculations must be shown on a separate piece of paper.

For each new calculation, show the formula that was used and how the data was used in the equation(s). All answers must be recorded using the correct number of sig figs.

Post-Lab Questions-Answer any post-lab questions

****Lab Reports must be neatly written, organized, and clear. A minimum of 5 points will be deducted if your lab report is not clear and organized.**

****Lab Reports are due at the beginning of class the week following the completion of the experiment. The penalty for late reports is two points per day late.**

****Each week I will post on Blackboard what is due for the following week. Be sure to check to make sure that you have completed the required assignments.**

General Chemistry Website: The General Chemistry website is a good resource for extra handouts and instructional guides for each of the labs: http://www.nku.edu/~chemistry/general_chem/

Exams: There will be two exams given this semester. The exams will consist of both a practical (~ 25 pts) and written portion (~ 100 pts). For the lab practical, you will be expected to collect accurate data using a previously learned laboratory technique. The written portion of the exam will consist of questions designed to test your understanding of the purpose and methodology of each experiment.

Formal Lab Reports:

In addition to the weekly lab reports, you will be required to write a Formal Introduction(FI), two Formal Discussions(FD), and a Full Formal Lab Report (FFLR) over the semester. The Formal Introduction and Formal Discussion are worth 25 points each. The Full Formal Lab Report is worth 125 points. The format for these formal

reports can be found of p.xix in the lab manual. My expectations are high for the written formal introduction, discussion, and full lab report. For the Formal Introduction and Discussion you are only required to write that ONE section of the report. For the Full Formal Lab Report you will need to include all sections as outlined on pg. xix of your lab manual. The formal reports must be a thorough, well-written explanation of the chemistry that is to be carried out or the chemistry that was performed. Grammar, spelling, and sentence structure will be taken into consideration when these are graded. They will be due at the beginning of class **one week after** the experiment has been completed.

Grading: Your score for the course will be determined by the number of points you earn divided by the total number of points available. The following is a list of the number of points each assignment is worth:

Introduction to Measurements: 25 points

Safety Quiz: 25 points

Laboratory Reports: 75 points each (10 x 75 = 750)

VSEPR Theory Lab 50 points

Exams- 125 points each (125 x 2 = 250)

Formal Introductions and Discussions-25 points each (25 x 3 = 75)

Full Formal Lab Report- 125 points

Total Points: 1300

A = 90-100 B = 80-90 C = 70-80 D = 60-69 F = 0-59

NOTE: A grade of C or better is required in CHE 120L to enter CHE 121L

Student Learning Outcomes for General Chemistry I Laboratory:

1. Explain the major concepts and experimental findings in the chemical sciences.
2. Demonstrate the ability to carry out experimental protocols using modern instrumentation and methods.
3. Compile, critically evaluate, and interpret scientific information and data.
4. Effectively communicate scientific information through written and oral means.
5. Apply effective group strategies to solve scientific problems.
6. Apply computer technology and other technologies in the comprehension, interpretation, and presentation of the chemical sciences.

Course Objectives for General Chemistry I Lab:

1. Use laboratory equipment, how to make measurements using appropriate precision and make observations to identify chemical and physical changes.
2. Use a laboratory record book, record data, analyze data and write lab reports including introductions and discussions.
3. Carry out syntheses; calculate theoretical yield, percent yield and percent errors.
4. Carry out qualitative and quantitative analyses using techniques such as precipitation, titration, calorimetry and spectroscopy.
5. Determine and evaluate experimental errors and their impact on results.
6. Use computer programs to analyze data.

Policies of the Department of Chemistry at Northern Kentucky University:

- All items on the syllabus are subject to change at the discretion of the instructor
- Students are responsible for reading and understanding the syllabus. Any items that are not understood need to be brought to the attention of the instructor within the first two weeks of the semester
- The work that you do in this course is subject to the Student Honor Code. The Honor Code is a commitment to the highest degree of ethical integrity in academic conduct, a commitment that, individually and collectively, the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain an academic advantage over fellow students or avoid academic requirements.
- Cheating will not be tolerated. Faculty members have the right to determine actions to be taken when a student is caught cheating.
- Faculty members have the right to dismiss or have removed disruptive students from their classroom.
- Please see blackboard for information regarding disability services and the learning assistance program