

**CHE 120L-14
COURSE SYLLABUS**

**General Chemistry I Lab
Section 14 Thurs. 9:25a.m. - 12:25p.m. SC 422**

Spring 2008

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Office Hours: Wednesday Noon-12:50 p.m.
Thursday 12:30 p.m.- 1:30 p.m.
Other hours by appointment.

PREREQUISITE: High school chemistry and either a minimum score of 20 on ACT math section or equivalent; or a C or better in CHE 102

COREQUISITE: General Chemistry I Lecture

REQUIRED TEXT: *General Chemistry I Laboratory Manual, Padolik, L; & Hicks, Jr., W.V..*

REQUIRED MATERIALS:

Laboratory Record Book, Hayden McNeil Publishing
Safety Goggles
Sponge
Scientific Calculator

COURSE OBJECTIVES:

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

COURSE REQUIREMENTS:

1. Lab Record Book: The lab record book is required for each experiment and each experiment must start on a new page. The whole heading on each page must be filled out. The laboratory record book will be used for all experiments. Each experiment will have the following sections: **Title, Objectives, Protocol, Procedure, Data and Observations, Results and Calculations.** Each record book entry should be written in black or blue ink.

Preparation before class: Students are expected to come to lab with a thorough understanding of the principles involved in the experiment, the goals of the experiment and the procedures to be followed. This requires you to read the entire experiment ahead of time and prepare a prelab write-up in your lab record book and complete any pre-lab questions in your lab manual. The protocol is the set of experimental steps one *expects* to follow. Steps in the protocol should be numbered and should be written across both columns of the record book. The complete **title, objectives, protocol, and materials** must be written in the Lab Record

Book before coming to the lab and I will check and initial your lab notebook at the beginning of the class (9:25 a.m.). Incomplete or incorrect prelab preparation will result in a 10 point deduction and you will still need to complete the lab notebook prelab preparation before you are allowed to start your experiment.

During the experiment: Start the **Procedure, Data, and Observations** on the next new page. Procedure is the set of steps one has actually carried out during the experiment. Procedural steps are to be numbered sequentially. Data must be recorded to the proper number of significant figures, have the correct labels, and be clearly identified. An example is available in your lab manual (p. v-vi). Observations are any observable changes during the experiment and should be clearly and thoroughly recorded. The last section is **Results and Calculations**. This is where you will give a description of your findings and show your calculations. You will only be allowed to use your lab notebook and calculator during the lab.

At the end of the lab class: Copy pages of Procedures, Data and Observations, and Results and Calculations are to be submitted to the instructor.

3. Lab Report: For most experiments the Lab Report consists of completing the "Report" section and the "Post-laboratory Question" section in the lab manual. All written work must be neat (completed in pen or typed) and legible to the instructor and independently written to receive credit. I highly recommend that you utilize the "electronic" online versions of these documents. All pages are to be turned in stapled and in proper order.

For the experiments titled *The Empirical Formula of Zinc Iodide* and *Titration*, formal "Introductions" are to be written in addition to the standard Lab Report. For experiments titled *Synthesis of Alum* and *Bleach Titration* formal "Discussions" are to be written in addition to the usual report. The formal "Introductions" and "Discussions" are to be written in your own words. See pages xviii and xix of the lab manual for descriptions of what is to be included in an Introduction and a Discussion.

4. Due Dates: Each report is due at the **beginning (9:25 a.m.)** of the following lab period. Reports that are handed in after this time will be considered late and will be penalized 10 points per day. Reports will not be accepted if they are submitted more than 1 week after the scheduled completion of the experiment and students will receive a maximum of 30 points for those experiments.
5. Tests: There will be two tests (see schedule below). These tests will consist of both a practical portion and a written portion. Programmable and graphing calculators are not permitted during tests. Under no circumstances may calculators be shared during tests. Cell phones may not be used as calculators.
6. Attendance: Mandatory attendance for every laboratory session. Students must attend the registered lab session and be on time. A tardy student will not be allowed to stay late in order to complete the experiment. If a student misses a laboratory experiment with an emergency excuse, a make-up lab may be scheduled by contacting the instructor within 1 weekday of the missed lab (by **noon Wednesday**). The lab must be made up within one week of the missed lab. The student must obtain permission from the make-up lab instructor before showing up in the make-up lab class. Two makeup labs will be permitted but are not encouraged. Failure to follow this policy will result in a grade of ZERO for a missed lab.
7. Safety: Wearing of safety glasses, compliance with safety procedures (including proper waste disposal), and upkeep of the lab area comprise part of the student's participation grade. Instructor-initiated withdrawal of a student will occur if a student's conduct in the lab is judged to be unsafe or disruptive. No shorts or sandals are allowed in the laboratory.

8. Web Access: This is a web-enhanced course which requires students to access and use the following internet resources on a regular basis:
Blackboard: Students will be expected to use Blackboard to receive information from the instructor. To access Blackboard go to <http://learnonline.nku.edu> and then to Student Support Site and How to Log In.
General Chemistry website: http://www.nku.edu/~chemistry/general_chem/index.htm
This website has lab report sheets, pre-laboratory exercises, post-lab exercises, and other helpful information.
Email Account: In the Subject heading of your NKU e-mail identify your class (**CHE 120L-14**) before you start on your message. I do not open e-mail messages without proper subject headings. **My reply to your e-mail is your confirmation that I received your message.**

GRADING:

Most experiments will be graded on a 100 point bases except the experiments *Introduction to Measurements* and *Lewis Formulas, Formal Charge, and VSEPR* will be assigned 50 points each.

Experiments	70% of overall score
Tests	30% of overall score
Grading scale:	A: 100-90% of total points B: 89-80 C: 79-70 D: 69-60 F: 59-0

Policies of the Department of Chemistry at Northern Kentucky University

- All items on syllabi are subject to change by the instructor.
- The work you will do in any 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. In accordance with the Code of Student Rights and Responsibilities, faculty members have the right to determine actions to be taken when a student is caught cheating. In this class, students caught cheating or plagiarizing for the first time will receive a grade of zero for that test or assignment. Students caught cheating or plagiarizing a second time will receive an F for the course and will be reported to the Dean of Students.
- Cell phones and pagers can only be used for emergency purposes.
- Students with disabilities who require accommodations (academic adjustments, auxiliary aids or services) for this course must register with the Disability Services Office (UC 320 Or call 859-572-6373). Verification of your disability is required for you to receive reasonable academic accommodations.
- Students are responsible for reading and understanding all items on this syllabus. Any items not understood must be brought to the attention of the instructor within the first two weeks of class.
- Students not present for the first meeting of a chemistry laboratory in which they have enrolled may be dropped from the class immediately, unless they have notified the instructor of the chemistry department at 572-5409 of their expected absence. If the lab from which they are withdrawn is a co-requisite for a lecture course, the student will be withdrawn from that lecture also.
- If you withdraw from the lecture course at any time, you MUST also withdraw from the lab course.
- A grade of C or better is required in CHE 120 and CHE 120L to enter CHE 121 and CHE 121L.
- Faculty members reserve the right to dismiss or to have removed a disruptive student from their classrooms.

CHE 120L-14 LAB SCHEDULE:

Dates	Experiment Titles	*Prelab	Report
1/17	Check-In, Safety, OWL, Introduction To Measurements		Quiz TBA
1/24	An Introduction to Chromatography (p. 1)	RB	p. 5-7
1/31	Laboratory Measurements (p.9)	RB, PL(p.13-14)	p.15-18
2/7	Chemical and Physical Properties (19)	RB	p. 21-23
2/14	Empirical Formula of Zinc Iodide (p.25)**	RB, PL (p.27), Introduction	p. 29-30
2/21	Chemical Reactions (p.31)	RB, PL (p.35)	p. 37-42
2/28	Titration (p.43) **	RB, PL (p.63),	p. 65-67 Discussion
3/6	Test 1 & Practical		
3/13	<i>Spring Break0</i>		
3/20	Calorimetry and Hess's Law (p.59)	RB, PL (p.67-68)	p. 69-72
3/27	A Cycle of Copper Reactions (p.73)	RB, PL (p.77)	p. 79-80
4/3	Synthesis of Alum (p.53)**	RB Introduction	p. 57-58 Discussion
4/10	Absorption Spectroscopy (p.83)	RB	p. 85-86
4/17	Titration of Bleach (p.87)	RB, PL (p.47)	p. 91-92
4/24	Lewis Formula, Formal Charge, and VSEPR (p.93)		p. 99-107
5/1	Check-Out, Test 2 & Practical		

*Due before starting lab. RB = lab record book (protocol) PL = prelab worksheet

**For these experiments *Introduction* and/or *Discussion* will be required.