

**CHE 121L-014**  
**Course Syllabus**

General Chemistry Lab II

W 2:00-5:00pm

Spring 2009

Instructor Information

Vinay Kumar      SC 446; telephone 572-5408; email: kumar@nku.edu

Office Hours:      W 9:30 - 11:30, TR 10:50-11:50  
Other hours by appointment

Co-requisite

General Chemistry II Lecture, CHE 121 (any section)

Required Lab Manual

*Laboratory Manual for General Chemistry II* ( CHE 121L), 2009 Edition; Hicks Jr., W.Vernon, Niewahner, J.H., Padolik, Laura and Walters, Keith; Department of Chemistry, Northern Kentucky University.

Other Required Materials (to be brought to the lab for each experiment)

- 1) Lab Record Book, Hayden McNeil Publishing; 2) Safety Goggles; and 3) Sponge Towel

Lab Record Book

For instructions on keeping record of the lab work and how to maintain your Lab Record Book, see page iii of the lab manual.

Preparation for Lab

Students are expected to come to lab with a thorough understanding of the principles involved in the experiment, the goals of the experiment, the safety precautions, and the procedures to be followed. Whenever appropriate, the student should also know what data and observations are anticipated. This requires the student to read the entire experiment ahead of time and read all the recommended reading materials, including the instructions in the next paragraph for writing the Pre-Lab Report.

Pre-Lab Report:

Before coming to the lab the student should write the following information in the Lab Record Book. (see sample write-up on page v of the lab manual): [The Title of the experiment to be done that day, Objective/s, Safety Precautions and a Protocol]. A sample protocol is also shown on page 3 of the lab manual. Make sure the steps of the protocol are numbered.

Handing in the Pre-Lab Report: As you carry out the experiment, record the data and observations next to the protocol in the Pre-Lab Report ( see sample format on page vi of the lab manual). At the end of the experiment, before leaving the lab turn in the carbon copy of the Pre-Lab Report including the data and observations to the instructor.

Department of Chemistry Policies:

- ✓ The Instructor reserves the right to modify the syllabus at any time during the semester.
- ✓ Students are required to read and understand the contents of this syllabus. Any questions must be brought to the instructor's attention by January 26, 2009.
- ✓ Faculty members reserve the right to dismiss or to have removed a disruptive student from their classrooms.

Major Learning Objectives:

1. Explain the colligative properties of solutions and how they can affect chemical reactions.
2. Apply acid/base theory to interpret the chemical properties of various substances.
3. Determine rate laws of chemical reactions through interpretation of empirical data.
4. Explain observations on chemical reactions based on chemical equilibrium.
5. Calculate and measure cell potentials using electrochemistry standards.
6. Determine anions present in an unknown sample through qualitative experimentation.
7. Know how to use a laboratory notebook, record data, analyze data and write lab reports including introductions and discussions.
8. Know how to use computer programs to analyze data.
9. Demonstrate an understanding of chemical principles and the ability to interpret data through written formal lab reports.

Lab Report:

Except for the two experiments mentioned under the Formal Reports section (see below), the Lab Report for each experiment will consist of : i) the Data Sheets (see pages 5-6 of lab manual for example). Record all data, results and calculations with a pen in a neat and orderly fashion. Data must be recorded to the proper number of significant figures, have the correct units, and be clearly identified. ii) answers to the Post- lab questions sheet/s (see page 6 for example). All pages must be stapled together in order.

Note: Blank Lab Report pages may be found on the General Chemistry Website:

[http://www.nku.edu/~chemistry/general\\_chem/](http://www.nku.edu/~chemistry/general_chem/). These pages may be filled in using the keyboard and/or printed out and filled in by hand.

Formal Reports:

For the experiments entitled, "Synthesis of  $\text{SnI}_4$ " and "Titration Curve for a Polyprotic Acid", a written Introduction and Discussion sections will also be required in addition to the data pages. On pages xviii and xix of the lab manual you can find information on how the Introduction and Discussion sections are to be written.

Due Dates and Late Penalty:

Reports are due at the beginning of the next lab period. Reports that are handed in after the next lab period will be considered late and will be assessed a 10% late penalty per day. If a report is more than one week late, a grade of 40 will be assigned for that experiment. If an experiment is completed, and no report is ever turned in, a grade of 30 will be assigned for that experiment.

### Tests:

There will be one test given on Mar. 4 and another on April 29. These tests will consist of both a lab practical and a written portion. The lab practical will be worth between 20 and 25% of the overall test score. The format for the lab practical will be distributed a week before the test.

### Grading:

All Experiments will be graded on a 100-point basis.

Lab reports	=	60% of overall score
Tests	=	30% of overall score
Pre-lab reports	=	10% of overall score

<u>Overall Score</u>	<u>Letter Grade</u>
90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

### Attendance Policy:

If a student misses a laboratory experiment with an emergency excuse, a makeup lab may be scheduled by contacting the instructor within 2 weekdays of the missed lab. The lab must be made up within one week of the missed lab. The student must get a Lab Make Up Form from the instructor, and also obtain permission from the make-up lab instructor. Only two makeup labs will be permitted. Failure to follow this policy will generally result in a grade of zero for the missed lab.

### Safety

**All safety rules must be obeyed. Repeated violation of these rules will result in dismissal from the lab and a grade of zero for that experiment. Habitual violation of Safety Rules during the semester will result in dismissal from the course and a grade of F for the course.**

### Honor Code

**As in all other chemistry courses the NKU Honor Code will be enforced in this section of CHE 121 lab. For more information on the Honor Code, please visit the Dean of Students website <http://www.nku.edu/~deanstudents/HonorCode.htm>**

*“Students with disabilities who require accommodations (academic adjustments, auxiliary aids or services) for this course must register with the Office of Disability Services; University Center Suite 320; (859) 572-6373. Verification of your disability is required in the disability services office for you to receive reasonable academic accommodations. For more information visit website at [www.nku.edu/~disability](http://www.nku.edu/~disability).”*

Lab Schedule: please see next page

Spring 2009  
CHE 121Lab Schedule (Wednesday section)

Jan. 14	Phosphorous in Fertilizer	
Jan. 21	Distillation & GC	
Jan. 28	Aspirin -1	
Feb. 4	Aspirin -2	
Feb. 11	F.P. Depression	
Feb.18	Kinetics	
Feb.25	Chemical Equilibrium	
Mar.4	<b>Test 1 and Lab Practical 1</b>	
Mar.11	Spring break	
Mar.18	Synthesis of SnI <sub>4</sub>	
Mar.25	Acids, Bases & Salts	
April 1	Titration Curve	
April 8	Household Chemicals	
April 15	Qualitative Anion Analysis	
April 22	Electrochemistry	
April 29	<b>Test 2 and Lab Practical 2</b>	

**Department of Chemistry**  
**Course Objectives for General Chemistry II Lab**

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. Utilize critical thinking skills to apply concept knowledge and adapt experimental techniques to: a) form and test hypotheses and b) solve scientific problems
4. Compile, critically evaluate, and interpret scientific information and data.
5. Effectively communicate scientific information through written and oral means.
6. Apply effective group strategies to solve scientific problems.
7. Apply computer technology and other technologies in the comprehension, interpretation, and presentation of the chemical sciences.