

**CHE 105L-02
LAB SYLLABUS**

Discovering Chemistry with Lab

Fall 2006

Section 02 Wed. 1:00 p.m. – 3:00 p.m. SC 462

Reasoning through the Discovery Process: A Study of Chemistry and Chemical Energy

Instructor: Julia Y. Bedell
Office: SC 322
Email: bedell@nku.edu
Phone: (859) 572-5432

Office Hours: Tue. 1 p.m. - 1:50 p.m.
Wed. Noon -12:50 p.m.
Other hours by appointment

PREREQ: None

CO REQ: CHE 105

PURPOSE: This course stresses discovery-based learning in a laboratory environment and will complement and enhance the lecture content presented in CHE 105. The lab offers an opportunity for students to develop reasoning and analytical skills that are essential for pre-service teachers (elementary and middle school education majors).

OBJECTIVES:

The following are some of the specific objectives of this laboratory course.

1. To help students develop reasoning strategies by having discovery type activities and post-lab discussion sessions.
2. To place students in small groups in order to emphasize the effectiveness of cooperative behavior in problem solving situations.
3. To demonstrate to the students real-life applications of chemistry by utilizing food and household cleaning products in several experiments.
4. To show students how computers are used in the laboratory for monitoring, collecting and plotting data.
5. To allow the students to carry out serial dilution and acid-base titration via computer simulation.
6. To allow the students to perform a microscale redox titration.
7. To train the students in laboratory safety appropriate to the experiments involved.

REQUIRED TEXT AND MATERIALS:

1. Discovering Chemistry with Lab: CHE 105 Laboratory Manual; Vinay Kumar and Julia Y. Bedell; Northern Kentucky University

2. Safety glasses and sponge

COURSE REQUIREMENTS (Lab):

1. **Attendance is mandatory for every laboratory session.** Missed labs will be assigned a grade of zero unless arrangements are made with the instructor. Students must provide legitimate proof to be excused from a lab.
2. 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.
3. Prior to each experiment, there will be a pre-lab quiz. This quiz will be based on the introductory material, the objective, assigned readings, selected portions of the experimental procedure, and safety rules. There will be no make-up quiz and a grade of zero will be assigned for a missed quiz.
4. Formal lab reports will be required for some of the experiments. These experiments will be identified during the semester.
5. Lab reports (including data sheet, discussion questions, and graphs) must be turned in at the beginning of the following lab. A 10% deduction will be imposed for lateness per week. Lab reports more than two weeks late will be assigned a grade of 45 out of 75 (for most of the experiments) or 60 out of 100 (for experiments with formal lab reports).
6. All written work must be legible and grammatically correct. Use only loose-leaf papers that are stapled together prior to lab. The organization and presentation of the reports will be graded. All written work must be done independently to receive credit.
7. Email Account: All students are required to provide the instructor with an email address by the second lab class. Information such as assignments or any changes in the experiments or syllabus will often be communicated by email. Students are responsible for this information.

In the Subject heading of your NKU e-mail identify your class (**CHE 105L**) 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 the message.

GRADING:

Pre-lab Quizzes	5%
Laboratory participation, results and reports (Lab report = 75 points, Final Lab report = 100 points)	60%
Tests and Lab Practicals	35%

LAB SCHEDULE: Please see page 4.

ADDITIONAL INFORMATION

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). 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.
- If you withdraw from the lecture course, you MUST also withdraw from the lab course.
- Faculty members reserve the right to dismiss or to have removed a disruptive student from their classrooms.

CHE 105L
Fall 2006 Lab Schedule

Week No	Dates	Lab Dates(Wed)
1	August 23	Introduction, Check in, and Lab Safety video
2	August 30	Exp 1 Measurements
3	September 6	Exp 2 Separation of a Mixture
4	September 13	Exp 4 Conductivity Detector
5	September 20	Exp 5 Properties of Matter
6	September 27	Exp 13 Energy of Physical Processes (Lab Pro/Calculator)
7	October 4	Exp 6 Chem Reaction & Energy (Computer Interface Exp.)
8	October 11	Lab Test 1 (exps 1,2,4,5,13) and Lab Practical (TBA)
9	October 18	Exp 7 Energy Content of Foods (Computer Interface Exp.)
10	October 25	Exp 8 Vitamin C Analysis
11	November 1	Exp 9 Acids & Bases (CBL experiment)
12	November 8	Exp 10 Acid-base titration (Computer simulation Exp.)
13	November 15	Exp 11 Synthesis of Esters & Polymers
14	<i>November 22</i>	<i>Thanksgiving Break</i>
15	November 29	Exp 12 Identification of Plastics
16	December 6	Lab Test #2 (exps 6,7,8,9,10,11,12), LabPractical (TBA)