

**CHE 105L-02
LAB SYLLABUS**

Discovering Chemistry with Lab

Spring 2007

Section 02 Wed. 1:00 p.m. – 2:50 p.m. SC 462

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

Instructor: Julia Y. Bedell
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Office Hours: Wed. Noon -12:50 p.m.
Thurs. 1:00 p.m. – 2:00 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).

MAJOR OBJECTIVES (Lab):

The course emphasizes the KERA approach in the teaching of chemistry to pre-teachers (elementary and middle school education majors). The major objectives of this laboratory course are:

1. To help students develop reasoning strategies by performing activities that lend themselves to a guided-inquiry approach.
2. To show students how common, safe and inexpensive household materials can be used to teach chemical concepts.
3. To show students how data in the lab is collected, displayed and analyzed using computers, calculators and temperature and pH sensors.
4. To let students work in small groups in order to emphasize the effectiveness of cooperative behavior in solving scientific problems.
5. To present the micro scale approach as a cost efficient alternative to the traditional lab., students carry out a titration on a micro scale.
6. To emphasize lab safety students are required to follow basic safety rules when working in the laboratory.

7. To prepare pre-teachers to develop and teach science activities consistent with the KERA philosophy.

REQUIRED TEXT AND MATERIALS:

1. Discovering Chemistry with Lab : CHE 105 Laboratory Manual; Vinay Kumar and Julia Y. Bedell ; Spring 2006 edition, 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 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.
- “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.”

CHE 105L
Spring 2007 Lab Schedule

Week No	Dates	Lab (Wed)
1	Jan. 10	Introduction, Check in, and Lab Safety video
2	Jan. 17	Exp 1 Measurements
3	Jan. 24	Exp 2 Separation of a Mixture
4	Jan. 31	Exp 4 Conductivity Detector
5	Feb. 7	Exp 5 Properties of Matter
6	Feb. 14	Exp 13 Energy of Physical Processes (Lab Pro/Calculator)
7	Feb. 21	Exp 6 Chem Reaction & Energy (Computer Interface Exp.)
8	Feb. 28	Lab Test 1(exps 1,2,4,5,13) & Lab Practical (TBA)
9	Mar. 7	Spring break
10	Mar. 14	Exp 7 Energy Content of Foods (Computer Interface Exp.)
11	Mar. 21	Exp 8 Vitamin C Analysis
12	Mar. 28	Exp 9 Acids & Bases (CBL experiment)
13	April 4	Exp 10 Acid-base titration (Computer simulation Exp.)
14	April 11	Exp 11 Synthesis of Esters & Polymers
15	April 18	Exp 12 Identification of Plastics
16	April 25	Lab Test #2 (exps 6,7,8,9,10,11,12), Lab Practical (TBA)

IMPORTANT UNIVERSITY DATES:

March 26 Last day to drop a course with a grade of "W"
March 5-10 No classes (Spring break)