

LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:

This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore <http://www.labette.edu/bookstore> for the required texts for this class.

COURSE NUMBER:

CHEM 103, 104, 105, 120

COURSE TITLE:

BASIC CHEMISTRY I, II, III
INTRODUCTION TO CHEMISTRY

SEMESTER CREDIT HOUR:

103 Basic Chemistry I	1 Credit Hour (1/3 of Lecture only)
104 Basic Chemistry II	2 Credit Hours (2/3 of Lecture only)
105 Basic Chemistry III	3 Credit Hours (All of Lecture only)
120 Introduction to Chemistry	5 Credit Hours (All of Lecture and Laboratory)

DEPARTMENT:

Chemistry

DIVISION:

General Education

PREREQUISITE:

None for CHEM 103 and CHEM 104
MATH 096 Beginning Algebra for CHEM 105
MATH 096 or MATH 106 or High School Algebra
for CHEM 120

REVISION DATE:

4/2013

COURSE DESCRIPTION:

This course provides a basic foundation in general chemistry. Course content includes nomenclature, acids and bases, nuclear chemistry, bonding, molecular structures, biological molecules, unit conversions, and solution chemistry. This course is recommended for students in health and science fields, for students preparing for CHEM 126 College Chemistry I, and students fulfilling general education requirements

The overall objectives to the course are as follows:

- To provide a body of knowledge concerning transformations and processes in chemistry.
- To provide insights into the nature of matter.
- To develop problem solving skills.
- To understand how the microscopic (atoms and molecules) effects the macroscopic (the visible world).
- To develop a sense of chemistry's societal importance, especially its impact on the environment, industry, and technology.

COURSE OUTCOMES AND COMPETENCIES (LECTURE)

Course Correspondence with Student Learning Outcomes	
Basic Chemistry I	Outcomes 1 - 2
Basic Chemistry II	Outcomes 1 - 4
Basic Chemistry III	Outcomes 1 – 5
Introduction to Chemistry	Outcomes 1 - 5

Students who successfully complete this class will be able to:

1. Explain the scientific method, convert between measurement systems, classify forms of matter and explain Bohr's Model of electron placement. (Correlates with chapters 1 and 2)

- Convert between "floating decimal-point" and scientific notation.
- Compare systems of measurements.
- Explain mass, volume, temperature and compare unit systems of each.
- Make simple unit conversions.
- Compare and classify forms of matter.
- Explain Bohr's Model of electron placement.

2. Name compounds, write and balance chemical equations. (Chapter 3 and 4)

- Classify compounds.
- Write names from formulas.
- Write formulas from names.
- Explain the meaning of chemical equations.
- Balance chemical equations.
- Write chemical equations.

3. Classify chemical reactions and draw structures of molecules. (Chapters 5 and 6)

- Classify and write precipitation, acid-base, and oxidation-reduction reactions.
- Define and apply acid-base concepts.
- Apply oxidation-reduction reactions.
- Classify bonding types
- Draw Lewis and 3-dimensional structures.

4. Classify, describe, and apply biological compounds and nuclear reactions. (Chapter 7 and 8)

- Classify biological compounds.
- Describe the functions of biological compounds.
- Describe and explain nuclear isotopes.
- Write nuclear equations.
- Apply nuclear chemistry to medicine.

5. Explain, apply, and use in calculations; significant figures, the mole concept and properties of gases. (Chapters 9 and 10)

- Round to the correct number of significant figures.
- Make more complex unit conversions.
- Convert among three temperature scales.
- Define density and do density calculations.
- Define the mole and use Avogadro's number as a conversion factor.
- Define atomic weight and use it as a conversion factor.
- Calculate molecular weight and use it as a conversion factor.
- Explain how gases can be measured.
- Explain how the gas measurements are interrelated.
- Explain and use the ideal gas law in calculations.
- Explain the differences between ideal and real gases.

COURSE OUTCOMES AND COMPETENCIES (LABORATORY)

Students who successfully complete this class will be able to:

1. Demonstrate competencies in laboratory techniques.

- Describe or demonstrate the following laboratory techniques; weighing on pan and electronic balances, gravity and vacuum filtration, measuring pH with pH paper, preparing a solid in a melting point tube, and measuring the melting range of a solid in a Mel-Temp™.

2. Show greater understanding in concepts that correlate with those in the lecture.

- Show understanding of the following concepts; significant figures, density, acids and bases, chemical and physical changes, safety principles, gas laws, and determination of unknowns.

CORE OUTCOMES:

The learning outcomes and competencies detailed in this syllabus meet, or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Project for this course, as sanctioned by the Kansas Board of Regents.