COURSE NUMBER: CHEM 100

CREDITS: 4

COURSE TITLE: Introduction to Chemistry with Laboratory

PREREQUISITES: PREC 12 or MATH 100. Students with any university chemistry course may not take this course for credit.

Total Hours: 91

COURSE DESCRIPTION: This course introduces the general concepts of chemistry, including atomic structure, chemical bonding, liquids and solutions, kinetics, and equilibrium.

LEARNING OUTCOMES:

By successful completion of this course, you should be able to:

- Demonstrate a firm grasp of the knowledge of chemistry, as specified in course syllabus and objectives.
- Identify the relationships between chemistry and other science disciplines, and the applications of chemistry in society. Identify the impact of chemistry on our life and the world around us.
- Solve chemistry problems using mathematical and computational tools.
- Understand and use the correct vocabulary necessary to communicate specific chemical information to other chemists and non-chemists.
- Demonstrate competency in the laboratory skills: knowledge of the appropriate equipment and techniques, and follow the proper procedures and regulations for safe handling when using chemicals.
- Be able to understand the specific instructions given to carry out experiments, make observations and collect the necessary data with the appropriate precision and accuracy, then in a report process the data and determine and assess the results.
- Understand the bases of the electronic structure of atoms and its relationship to the periodic table of the elements.
- Be able to identify the types of molecular bonds and shapes of simple molecules
- Understand the factors governing the kinetics of chemical reactions.
- Comprehend and test the equilibria of various systems, both homo- and heterogenous, as related to gases, acids, and bases.
- Understand the fundamentals of oxidation-reduction reactions. Be able to recognize and balance a redox reaction

COURSE CONTENT:

Week	Topic
Week 1	Scientific Method, Measurements and Calculations
Week 2	Matter, Elements, Atoms, Ions
Week 3	Modern Atomic Theory
Week 4	Chemical Nomenclature, Chemical Reactions
Week 5	Chemical Composition
Week 6	Chemical Quantities and Stoichiometry
Week 7	Energy
Week 8	Liquids and Solids
Week 9	Chemical Bonding
Week 10	Solutions
Week 11	Equilibrium
Week 12	Acids and Bases
Week 13	Oxidation-Reduction Reactions