

CHEM 100 Course Outline as of Fall 2022**CATALOG INFORMATION**

Dept and Nbr: CHEM 100 Title: BASIC CHEMISTRY SKILLS

Full Title: Basic Chemistry Skills

Last Reviewed: 10/11/2021

| Units | | Course Hours per Week | | Nbr of Weeks | Course Hours Total | |
|---------|------|-----------------------|------|--------------|--------------------|-------|
| Maximum | 2.00 | Lecture Scheduled | 2.00 | 17.5 | Lecture Scheduled | 35.00 |
| Minimum | 2.00 | Lab Scheduled | 0 | 6 | Lab Scheduled | 0 |
| | | Contact DHR | 0 | | Contact DHR | 0 |
| | | Contact Total | 2.00 | | Contact Total | 35.00 |
| | | Non-contact DHR | 0 | | Non-contact DHR | 0 |

Total Out of Class Hours: 70.00

Total Student Learning Hours: 105.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

Catalog Description:

An introductory course designed to familiarize the student with the basic concepts of chemistry while developing necessary skills for success in general chemistry and chemistry for the allied health sciences. Basic mathematical operations, the metric system, and the scientific method as it applies to chemistry are also covered.

Prerequisites/Corequisites:**Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: An introductory course designed to familiarize the student with the basic concepts of chemistry while developing necessary skills for success in general chemistry and chemistry for the allied health sciences. Basic mathematical operations, the metric system, and the scientific method as it applies to chemistry are also covered. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

| | | | |
|----------------------|----------------------|------------|-----------|
| AS Degree: | Area | Effective: | Inactive: |
| CSU GE: | Transfer Area | Effective: | Inactive: |
| IGETC: | Transfer Area | Effective: | Inactive: |
| CSU Transfer: | | Effective: | Inactive: |
| UC Transfer: | | Effective: | Inactive: |

CID:

Certificate/Major Applicable:

Not Certificate/Major Applicable

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

1. Describe the basic structure of matter and relate it to the physical world.
2. Solve basic word problems involving chemical concepts.
3. Apply study skills to learning chemical concepts.

Objectives:

At the conclusion of this course, the student should be able to:

1. Recognize the application of the scientific method in chemistry.
2. Perform calculations using measured quantities with proper units and precision.
3. Express measurements such as temperature and density using different units.
4. Describe the nature of each of the states of matter.
5. Identify the chemical elements and the parts of the periodic table.
6. Differentiate ionic and covalent compounds in terms of names, formulas, and bonding.
7. Describe the structure of atoms and molecules.
8. Relate the mass of a substance to the number of particles.
9. Write simple chemical reactions and perform simple chemical calculations.
10. Identify and practice study skills that will contribute to success in chemistry.

Topics and Scope:

I. Study Skills for Success in Chemistry

- A. Learning strategies
- B. Time management
- C. Note-taking
- D. Problem solving
- E. Preparing for and taking exams
- F. Analyzing scientific terms, symbols, and figures

- G. Reading a science textbook
- II. The Scientific Method
- III. Measured Quantities and Units
 - A. Uncertainty and significant figures
 - B. The metric system and SI units
 - C. Unit conversions
- IV. Mathematical Operations in Chemistry
 - A. Density calculations
 - B. Temperature conversions
 - C. Relating mass to number of particles
- V. The Nature of Matter
 - A. The states of matter
 - B. Classification of matter
 - C. The elements and the periodic table
- VI. Chemical Bonding
 - A. Ionic and covalent bonds
 - B. Molecules and Lewis dot diagrams
 - C. Nomenclature of ionic and molecular compounds
- VII. Chemical Reactions
 - A. Writing chemical reactions
 - B. Balancing chemical reactions

Assignment:

1. Weekly reading and study assignments (approximately 20 pages/week)
2. Homework assignments/study problem sets (5-10)
3. Exam(s) (1-3)
4. Final exam
5. Quiz(zes) (0-4)
6. Class activities

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing
0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems/study problem sets

Problem solving
20 - 50%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

| | |
|--|--------------------------------|
| None | Skill Demonstrations 0 - 0% |
| Exams: All forms of formal testing, other than skill performance exams. | |
| Quizzes, exams | Exams 30 - 60% |
| Other: Includes any assessment tools that do not logically fit into the above categories. | |
| Participation in class activities | Other Category 0 - 20% |

Representative Textbooks and Materials:

An Introduction to Chemistry. Bishop, Mark. Chiral Publishing Company. 2008 (classic)
 Introduction to Chemistry. 5th ed. Bauer, Rich and Birk, James and Marks, Pamela. McGraw Hill. 2019
 In Preparation for College Chemistry. 5th ed. Daub, G William and Seese, William S. Prentice Hall. 1993 (classic)
 Schaum's Outline of Beginning Chemistry. 4th ed. Goldberg. McGraw-Hill. 2013 (classic)
 CHEM 100: Lab Manual. Arbor Crest. Arbor Crest Publishing
 Instructor prepared materials