

COURSE INFORMATION FORM

Publish in college catalog?

Yes No

Course Title (Maximum of 48 characters) Intro to Chemistry

Department/Course Number CHEM& 121

Effective Quarter Spring 2020

Credits 5 Variable No Yes _____ - _____

Administrative Unit Code: GC
Department: Chemistry

Multiple Versions No Yes _____, _____, _____

Maximum Class Size 24

Long Course Description (for college catalog): (NOTE: Maximum of 995 characters)

(NS-L) Atomic and molecular structure, chemical bonding, nomenclature, states of matter, solutions, acids and bases, stoichiometry, quantitative and qualitative behavior of gases, dimensional analysis, reaction rates and chemical equilibrium. For students majoring in liberal arts, nursing, radiation technology, pre-occupation therapy, and dental hygiene. Not recommended for students planning to continue beyond CHEM& 131; see Chemistry series.

Short Course Description (for class schedule): (NOTE: Maximum of 240 characters)

Atomic and molecular structure, chemical bonding, nomenclature, states of matter, solutions, acids and bases, stoichiometry, behavior of gases, dimensional analysis, reaction rates and chemical equilibrium.

Prerequisites:

Eligibility for ENGL& 101 and eligibility for MATH 096

Co-requisites:

none

Pass/Fail Option Available? Yes No

Course Challenge Exam Available? Yes No

Can course be repeated for credit? Yes No

Number of repeats beyond initial enrollment: One Two

Course Intent (check all that apply):

DTA Distribution/Skill

Area Natural Science - Lab

DTA Elective (check one only)

University Transfer List (A)

Restricted Transfer (B/Gray area)

Not allowable as an elective for DTA

Fills requirement for _____

(certificate/degree)

Other _____

Workload Information:

| | Contact Hours | | Percent of Load |
|-------------------|---------------|---------|-----------------|
| Lecture | <u>40</u> | ÷ 150 = | <u>.267</u> |
| Laboratory | | ÷ 200 = | |
| Science Lab | <u>20</u> | ÷ 180 = | <u>.111</u> |
| Field Supervision | | ÷ 300 = | |
| Comments | | | |
| | | Total | <u>.378</u> |

Student Learning Objectives: Upon successful completion of this course, students will be able to:

1. Demonstrate use of the SI system of measurement and convert between SI units.
2. Demonstrate use of the dimensional analysis method for solving problems.
3. Describe the relationship between kinetic energy and temperature.
4. Distinguish between the states of matter and use kinetic molecular theory to describe the differences between them.
5. Distinguish among and compare elements, compounds, and mixtures.
6. Describe the fundamental particles of an atom and distinguish between isotopes.
7. Explain the importance and use of the Periodic Table.
8. Describe the formation of ionic and covalent compounds and how these compounds differ in properties.
9. Name selected chemical compounds and write chemical symbols for these compounds.
10. Balance chemical equations and use balanced equations for stoichiometric calculations.
11. Describe the concept of dynamic equilibrium and use LeChatelier's Principle to predict shifts in equilibria.
12. Use kinetic molecular theory and the Ideal Gas Law to describe and/or calculate the effect of changes in pressure, volume, temperature and number of molecules on the properties of gases.
13. Distinguish between acids, bases, and neutral substances using formula, pH, chemical reactions, and hydroxide or hydronium ion concentration.
14. Determine molecular geometry of single central atom molecules using VSEPR theory and Lewis dot structures
15. Determine the molarity of a solution using various methods including titration analysis.
16. Identify the parts of a buffer system and explain the chemical reactions occurring in the buffer system.
17. Record a measurement using various pieces of equipment to the correct number of significant figures.
18. Make observations of physical and chemical changes.
19. Identify the types of intermolecular forces in molecules.

| Core Learning Outcomes | Assessed (A) | If assessed, how is outcome measured? |
|-----------------------------------|---------------------------------------|--|
| CLO #1: Analytical Thinking | A <input checked="" type="checkbox"/> | Through the use of quantitative and qualitative reasoning, students will demonstrate their ability to complete assignments involving solving multistep problems. |
| CLO #2: Effective Communication | A <input checked="" type="checkbox"/> | Students will communicate the results of their assignments and laboratory experiments in written reports, narratives and classroom discussions. |
| CLO #3: Equity and Social Justice | A <input type="checkbox"/> | |

| Program Specific Outcomes | Introduced (I) or Assessed (A) | If assessed, how is outcome measured? |
|--|---|--|
| 1. Apply quantitative analysis to solve problems | I <input type="checkbox"/> A <input checked="" type="checkbox"/> | Students will solve problems through the use of algebra, analyzing and predicting outcomes from graphical data, and converting between scientific units. |
| 2. Apply the scientific method | I <input type="checkbox"/> A <input checked="" type="checkbox"/> | Students will apply the scientific method in order to understand chemical phenomena encountered in lab. |