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CHEM 1071: Introductory Chemistry - Part 2

EFFECTIVE DATE

January 2018

DEPARTMENT

UT Sciences

DESCRIPTION

This course is designed to introduce the student to the basic concepts of chemistry through lecture and laboratory activities. The content includes scientific method and measurements, safety measures in a laboratory environment, early atomic theory and structure, modern atomic theory, chemical bonds, organic chemistry, water and liquids, solutions, acids-bases-salts, and equilibrium. Both Chemistry 1061 and Chemistry 1071 are required for covering the chemistry topics contained in high school courses up to and including the Grade 11 level. It is recommended that Chemistry 1061 be taken before or at the same time as Chemistry 1071.

CREDITS

3.0

YEAR OF STUDY

1st Year Post-secondary

PREREQUISITES

• English 10 or equivalent • Precalculus 11 (successfully completed within the last 3 years, a minimum score of 72% on the Intermediate Algebra Math Assessment, or equivalent). If the math prerequisite is not met, MATH 0861 or MATH 1061 must be taken at the same time as CHEM 1071.

COREQUISITES

None

COURSE LEARNING OUTCOMES

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

- Analyze the historical development of atomic theory and describe the Bohr and Wave Mechanical model of the atom
- Use the periodic table to predict electron arrangement of chemical families and relate this to trends in ion charge, reactivity, ionization energy, electronegativity, atomic radii, and ionic radii
- Construct the formulas of covalent and ionic compounds using electronegativity and predict bond types

- Draw Lewis structures, predict molecular shapes, and determine polarity
- Predict solubility and conductivity of polar and non-polar compounds
- Define Arrhenius acids and bases and relate the pH scale to acids and bases
- Perform calculations involving dilutions and titrations
- Differentiate the various types of bonding between carbon atoms
- Write names and draw structures of hydrocarbons and categorize organic compounds based on their functional groups
- Perform experiments safely, collect and record data effectively, analyze and interpret data, and write formal reports

PRIOR LEARNING ASSESSMENT & RECOGNITION (PLAR)

None

HOURS

Lecture: 60

INSTRUCTIONAL STRATEGIES

Class-based: Chemistry 1071 uses a lecture-based model. A significant amount of class time will be spent on hands-on activities, concept-development worksheets and problem-solving. Four labs will be conducted and will relate to the core topics.

GRADING SYSTEM

Letter Grade (A-F)

PASSING GRADE

D

EVALUATION PLAN

| Type | Percentage | Assessment activity |
|---------------|------------|--|
| Assignments | 5 | |
| Lab Work | 20 | includes formal and informal lab reports |
| Exam | 65 | four tests at 15% to 20% each |
| Quizzes/Tests | 10 | 5 quizzes for a total of 10% |

COURSE TOPICS

- Scientific Method and Measurements
- Safety Measures in a Laboratory Environment
- Early Atomic Theory and Structure
- Modern Atomic Theory
- Chemical Bonds
- Organic Chemistry
- Water and Liquids
- Solutions
- Acids-Bases-Salts
- Equilibrium
- Additional Organic Chemistry (optional)
- Nuclear Chemistry (optional)
- Environmental Ethics (optional)

LEARNING RESOURCES

None

Notes:

- Course contents and descriptions, offerings and schedules are subject to change without notice.
- Students are required to follow all College policies including ones that govern their educational experience at VCC. Policies are available on the VCC website at:
<https://www.vcc.ca/about/governance--policies/policies/>.
- To find out how this course transfers, visit the BC Transfer Guide at <https://www.bctransferguide.ca>.

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