

Last Revised: September 2021

COURSE INFORMATION

Course Title: Principles of Chemistry I

Course Number: CHEM 101

Credits: 4

Total Weeks: 14 (Fall, Spring)
12 (Summer) **Total Hours:** 91

Course Level: First Year Second Year
 New Revised Course
 Replacement Course

Department: Science

Department Head: S. Girdhar

Former Course Code(s) and Number(s) (if applicable): N/A

Pre-requisites (If there are no prerequisites, type NONE): CH 12 and PREC 12 or CHEM 100 or equivalent

Co-requisite Statement (List if applicable or type NONE): NONE

Precluded Courses: N/A

COURSE DESCRIPTION

In this course, students will be introduced to the basic concepts of chemistry with an emphasis on chemical principles and methods. Topics include a review of definitions, the structure of matter, treatment of experimental data, nomenclature, chemical reactions and stoichiometry, atomic structure and periodic relationships, chemical bonding and molecular geometry, intermolecular forces, organic chemistry, structures of compounds and the chemistry of basic functional groups.

LEARNING OUTCOMES

Upon successful completion of the course, students will 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, with the ability of prediction of properties from the position of elements in the periodic table.
- Relate the types of molecular bonds and shapes, and intermolecular attractions to the bulk properties of matter.
- Identify by IUPAC names basic types of organic compounds and functional groups.

INSTRUCTION AND GRADING

Instructional (Contact) Hours:

Type	Duration
Lecture	52
Seminars/Tutorials	
Laboratory	39
Field Experience	
Other (<i>specify</i>):	
Total	91

Grading System: Letter Grades Percentage Pass/Fail Satisfactory/Unsatisfactory Other
Specify passing grade: 50%

Evaluation Activities and Weighting (total must equal 100%)

Assignments: 9% <i>Specify number of, variety, and nature of assignments:</i> 3 problem set assignments	Lab Work: 25%	Participation: 5% <i>Specify nature of participation: weekly attendance and contribution</i>	Project: % <i>Specify nature of project:</i>
Quizzes/Test: %	Midterm Exam: Midterm 1: 15 % Midterm 2: 15%	Final Exam: 30% Practice Final: 1%	Other: %

TEXT(S) AND RESOURCE MATERIALS

Provide a full reference for each text and/or resource material and include whether required/not required.

 OpenStax College. (2021). Chemistry. <https://openstax.org/details/books/chemistry-2e>
COURSE TOPICS

List topics and sequence covered.

Week	Topic
Week 1	Introduction, Atoms, Molecules, and Ions
Week 2	Composition of Substances and Solutions
Week 3	Stoichiometry of Chemical Reactions
Week 4	Gases
Week 5	Midterm 1
Week 6	Thermochemistry, Atomic Structure

Week 7	Periodic Relationships
Week 8	Chemical Bonding
Week 9	Midterm 2
Week 10	Molecular Geometry
Week 11	Advanced Bonding Theories
Week 12	Intermolecular Forces
Week 13	Organic Chemistry
Week 14	Final Exam

NOTES

1. Students are required to follow all College policies. Policies are available on the website at: [Coquitlam College Policies](#)
2. To find out how this course transfers, visit the BC Transfer Guide at: bctransferguide.ca