

Open University of Mauritius
Foundation Course
Foundation Level Chemistry-OUfc002

1. Introduction

In line with its philosophy to democratise access to university education, the Open University of Mauritius offers Foundation Courses. These courses aim at better preparing learners for higher education while allowing them to meet the minimum requirements to undertake undergraduate studies. They have been carefully developed by a team of experts to ensure smooth transition to university. They also motivate learners and give them a greater chance of succeeding. They play a pivotal role in helping learners to revisit lost skills, while giving them the necessary confidence and preparatory experience they need for success at university. However, they are not intended to replace secondary school courses. On successfully completing four foundation courses (8 modules) including English through Open Distance Learning (ODL), they can join degree programmes.

The ODL mode of delivery enables convenient self-study within a flexible framework. This mode of delivery allows learners to learn at their own pace, in their own place and time without disrupting their social, professional and domestic commitments hence, allowing them to earn while learning.

2. Aim

This course exposes learners to the scientific method. It focuses on facts, theories and their applications as well as their impacts on everyday life.

Learners will develop the skills needed to sharpen and interpret observations as well as to devise experiments for verification of relevant theories.

3. Programme Requirements

- SC/GCE O-level with 3 credits + 1 A-level
(Applicants should be less than 25 years of age)
- Mature candidates will be considered on their own merit.

4. Programme Duration

Minimum: 1 year

Maximum: 2 years

5. Minimum Credits Required for the Awards

8 credits

Each credit in the University's system is equivalent to a minimum of 20 hours of study including all learning activities (i.e. reading and comprehending the print material, listening to audio, watching video, attending tutorials/counseling sessions, writing assignment responses and preparation for the examinations). Thus, a 3-credit course involves a minimum of 60 hours of study

6. Assessment

- Assignments 30%
- Examinations 70%
- Overall pass 40%

Assessments will be based on written examination of 2-hour duration and continuous assessment carrying a maximum of 30% of total marks. Continuous assessment will be based on assignment(s). For a learner to pass a module, an overall total of 40% for combined continuous assessment and written examination components would be required without minimum thresholds within the individual continuous assessment and written examination. Learners may re-sit up to a maximum of two failed modules for the semester of the programme.

7. Course Structure

MODULE	Semester 1	Semester 2
OUfc002111-Chemistry I Unit 1 Particles Unit 2 Mole Concept Unit 3 Reaction Rate Unit 4 The Periodic Table	√	
OUfc002112-Chemistry II Unit 5 Organic Chemistry Unit 6 Elementary Mechanisms (in organic chemistry) Unit 7 Volumetric Analysis Unit 8 Gravimetric Analysis		√

8. Content Outline

OUfc002111-Chemistry I

Unit 1 - Particles

Kinetic model of matter, structure of the atom, chemical bonding, changes of states (+ energy changes), energy conservation.

Unit 2 - Mole Concept

Moles as applied to different situations, the Avogadro's constant, moles in electrolysis, reactions involving gases, volumetric analysis, gravimetry.

Unit 3 - Reaction Rates

Factors of reaction rates, the collision theory, the activation theory, experimental methods for reaction rates, enzymes and their characteristics, applications to industrial processes, refrigeration and biodegradation.

Unit 4 - The Periodic Table

Periodicity, groups, periods, 'blocks' of elements, types of elements, alkali metals, halogens, the uniqueness of hydrogen, the noble gases, the transitionals, patterns in groups and in periods.

OUfc002112-Chemistry II

Unit 5 Organic Chemistry

Petroleum, fossil fuels, fractionation, alkenes, alcohols, carboxylic acids. esters, halogen derivatives, isomers, functional groups, alkyl radicals

Unit 6 Elementary Mechanisms

Types of organic reactions, mechanisms for substitution, addition, elimination reactions, energy profile diagrams, electrophiles, nucleophiles free radicals, chain reactions.

Unit 7 Volumetric Exercises

Acid-based titrations, redox titrations, timing specified changes in chemical reactions, practicals involving thermometers.

Unit 8 Gravimetric Analysis

Water of crystallisation, heating carbonates and nitrates for gravimetric analysis, drawing cooling curve, plotting heating curve.

9. Learning Outcomes

After completing the two modules, learners should be able to:

- recognise different states of matter and their inter-conversions
- identify elements, mixtures, compounds
- apply the particulate nature of matter to the kinetic theory
- explain different types of bonds in substances/compounds
- adopt different approaches to the concept of the mole
- perform calculations based on moles
- recognise various factors which affect rates of chemical reactions
- apply different theories for reaction rates
- explain the classification of elements in the periodic table
- make predications on the basis of positions of elements in the Periodic Table
- describe group relations and trends in periods
- recognise and characterise different ‘families’ of organic compounds
- identify types of organic reactions and suggest mechanisms for them
- perform volume-based experiments
- carry out experiments which involve weighing
- use properly apparatus commonly available in the chemistry laboratory
- develop skills and use precautionary measures in practical work
- recognise the systematic approach used in scientific studies
- investigate chemical reactions by putting into practice what theory predicts
- plan, perform and interpret experiments with specified aims/objectives
- recognise the extent to which chemistry is practical-based

10. Supporting Materials

Manual	Open University of Mauritius
Video	
References	O Level Chemistry - JGR Briggs A Level Chemistry - JGR Briggs A Level Chemistry - E N Ramsden } Latest Edition