Atomic Structure and Reactivity

Module Information

2022.01, Approved

Summary Information

Module Code	4001APCHEM
Formal Module Title	Atomic Structure and Reactivity
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	43
Tutorial	6
Workshop	12

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	The module gives an introduction into key chemical concepts of atomic structure and chemical bonding which provide a strong foundation for the rest of the programme. Students will apply this knowledge to develop understanding of chemical processes such as electrolysis and chemical properties. Students will develop their numeracy skills during workshops and apply these to chemical concepts.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Demonstrate knowledge of key chemical principles such as atomic structure, bonding and periodicity.
MLO2	2	Relate chemical principles to chemical processes and properties.
MLO3	3	Demonstrate knowledge of main group chemistry.
MLO4	4	Employ numerical principles relevant to chemical processes.

Module Content

Outline Syllabus	Atomic structure and its relationship to quantum theory. Molecular and intermolecular bonding processes. The periodic table including periodic and group trends. Main group chemistry. Non-aqueous solvation processes. Numerical principles including: algebra and its application to chemical formulae; use of SI units; differentiation and integration; logarithmic functions and graphical techniques. All of these will be applied to chemical and physical concepts, the equations used to describe them and the determination of chemical and physical quantities.Electrochemistry including: ions in solution; electrochemical cells; electrode potentials and their application.
Module Overview	This module introduces you to key chemical concepts such as atomic structure and chemical bonding, providing a strong foundation for the rest of the programme. You will learn about atomic structure and how our understanding of this forms the basis of quantum theory. Chemical bonding and the nature of different chemical interactions will be explored which will enable you to understand the chemical and physical properties of elements. Through workshops you will develop your numeracy skills and learn to apply numeric functions to chemical and physical concepts, alongside the equations which describe them.
Additional Information	This module introduces some of the key chemical concepts that you will use as you progress through the programme. You will learn about atomic structure and how our understanding of this forms the basis for quantum theory. Chemical bonding and the nature of different chemical interactions will be explored and will enable understanding of the chemical and physical properties of the elements. You will learn the chemistry of the main group elements and the trends observed within the periodic table. There will be workshops to develop your numeracy skills and help you to apply numeric functions to chemical and physical concepts and the equations which describe them.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	60	2	MLO1, MLO2, MLO3, MLO4
Report	Report	40	0	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Linda Seton	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings