

Liverpool John Moores University

Title: ATOMIC STRUCTURE AND REACTIVITY
Status: Definitive
Code: **4001APCHEM** (121123)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
Linda Seton	Y
Steve Enoch	
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Academic Level: FHEQ4 **Credit Value:** 20 **Total Delivered Hours:** 63
Total Learning Hours: 200 **Private Study:** 137

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	43
Tutorial	6
Workshop	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Examination	60	2
Report	Report	Report	40	

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.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate knowledge of key chemical principles such as atomic structure, bonding and periodicity.
- 2 Relate chemical principles to chemical processes and properties.
- 3 Demonstrate knowledge of main group chemistry.
- 4 Employ numerical principles relevant to chemical processes.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Examination	1	2	3	4
Report	1	2	3	4

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.

Learning Activities

Lectures, workshops, tutorials

Notes

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.