

Module Information

2022.01, Approved

Summary Information

Module Code	3404FNDSCI
Formal Module Title	Fundamentals of Physical and Inorganic Chemistry
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 3
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	30
Online	10
Practical	12
Workshop	6

Module Offering(s)

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

Aims and Outcomes

Aims	This module provides students with an introductory understanding of thermodynamics, kinetics and the states of matter. It also serves to introduce concepts associated with simple molecular orbital theory, radioactivity, oxidation-states/redox chemistry and the properties and chemistry of selected main group elements.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	relate the rates of reaction to rate laws and to calculate the rate constant of a selected reaction
MLO2	2	describe how temperature, concentration and catalysts affect reaction rate
MLO3	3	distinguish between the bulk structure of solids, liquids and gases, and apply the appropriate gas laws to show the relationships between pressure, volume and temperature of gases
MLO4	4	calculate the bond-order of diatomic molecules
MLO5	5	use half equations to underpin full redox reactions
MLO6	6	predict or identify the chemistry of selected main group elements.
MLO7	7	calculate various parameters related to the mole concept

Module Content

Outline Syllabus	Transition-state theory, rate of reactions, rate laws, reaction order and half-life. Collision theory and the Arrhenius equation. Effect of catalysts on rate. Phases and phase diagrams, Properties of gases and the gas laws. Spontaneous reactions, free energy, enthalpy and entropy. Chemical equilibrium. Molecular orbital diagrams of diatomic molecules, bond order/length/strength. Unstable nuclei, alpha, beta and gamma emission. Redox chemistry and half-equations. Chemistry of the elements of a selected main group. The mole and related calculations.
Module Overview	This module provides an introductory understanding of thermodynamics, kinetics and the states of matter. It also serves to introduce concepts associated with simple molecular orbital theory, radioactivity, oxidation states/redox chemistry and the properties and chemistry of selected main group elements.
Additional Information	This module provides an introduction to key concepts of physical and inorganic chemistry at foundation level.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	60	2	MLO1, MLO2, MLO3, MLO4, MLO5, MLO6, MLO7
Report	Laboratory report	40	0	MLO1, MLO2, MLO5, MLO6

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Barry Nicholls	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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