

## Liverpool John Moores University

Title: Chemistry  
Status: Definitive  
Code: **3515IFYSP** (119753)  
Version Start Date: 01-08-2017

Owning School/Faculty: Academic Portfolio  
Teaching School/Faculty: Academic Portfolio

Team	Leader
Kamila Tomczak	Y

**Academic Level:** FHEQ3  
**Credit Value:** 24  
**Total Delivered Hours:** 121.5  
**Total Learning Hours:** 240  
**Private Study:** 118.5

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	60
Practical	10
Seminar	30
Tutorial	10
Workshop	10

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	750 word Scientific report	50	
Exam	AS2	In class tests	50	1.5

### Aims

*To provide students with an understanding of the core concepts of physical chemistry. This will include inorganic and organic chemistry, and an overview of contemporary science..*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Explain atomic structure and interactions between molecules
- 2 Carry out chemical calculations
- 3 Present chemical data in a clear manner
- 4 Undertake laboratory operations with an awareness of chemical safety
- 5 Recognise the social, economic, technological and industrial contexts that give Chemistry relevance in everyday life

## Learning Outcomes of Assessments

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

Report	3	4	5
Test	1	2	

## Outline Syllabus

*Atomic structure and bonding – elements, atoms, electrons, bonding (covalent, coordinate, polar, ionic), molecules, periodicity*

*Interactions between molecules – hydrogen bonding, charge, hydrophobic*

*Numbers – moles and molarity, molecular mass, units, dilutions, percent composition*

*Introduction to organic chemistry – carbon, nomenclature, stereochemistry, basic functional group chemistry*

*Isomerism - optical, geometric*

*Acids and bases – pH, buffers, calculating pH*

*Thermodynamics – basic energetics, enthalpy, entropy, Gibbs free energy*

*Kinetics – rate equations, reaction mechanisms, rate limiting step, activation energy, equilibrium, free energy*

*Redox – oxidation and reduction, half reactions, redox potential*

*Reactivity – addition, substitution, elimination, free radicals, enzyme catalysis*

*Metals – extraction and recycling*

*Weighing, measuring, titrations and chromatography*

## **Learning Activities**

Lectures and seminars will be used to consolidate knowledge of Chemistry and its application. Workshops and practicals will provide an opportunity for students to experience laboratory activities. The presentation of facts and data will be a theme throughout the learning and teaching.

## **Notes**

Students undertake practical activities in LJMU laboratories over a three week period.