

## Liverpool John Moores University

Title: FURTHER CHEMISTRY  
Status: Definitive  
Code: **3204FNDSCI** (113132)  
Version Start Date: 01-08-2012

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

Team	Leader
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**Academic Level:** FHEQ3      **Credit Value:** 12.00      **Total Delivered Hours:** 35.00  
**Total Learning Hours:** 120      **Private Study:** 85

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	16.000
Practical	8.000
Tutorial	5.000
Workshop	5.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	60.0	1.00
Portfolio	AS2	Coursework	40.0	

### Aims

*This module is intended to provide students on the Foundation programme with the enhanced knowledge and practical skills to study on a Pharmaceutical Sciences*

course. This will include to skills to carry out analytical experiments, the interpretation and evaluation of experimental data as well as writing scientific reports Additional knowledge will be provided in selected areas such as kinetics, the use of phase diagrams and mechanisms in organic chemistry. The topics will be related to real life examples (including pharmaceutical) wherever possible.

## Learning Outcomes

After completing the module the student should be able to:

- 1 To carry out a titration accurately and perform mole calculations.
- 2 To interpret experimental results, make deductions from data and write a scientific report.
- 3 To recall the factors affecting the kinetics of reactions
- 4 To account for physical processes using phase diagrams.
- 5 To recall the nature of nucleophilic substitution reactions and aromatic substitution reactions and predict the products arising from such reactions.
- 6 Use curved arrows to illustrate the mechanisms for nucleophilic substitution and aromatic substitution reactions.

## Learning Outcomes of Assessments

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

EXAM	3	4	5	6
Practical Portfolio	1	2		

## Outline Syllabus

*Interpretation of experimental results, trends in experimental results, use of significant figures and decimal places. Writing a scientific report for the Chemistry subject area.*

*Accuracy of weighing and pipetting, titration experiment exercise, calculations involving moles, balancing chemical equations, balancing charge and redox reactions.*

*Use of dilution factors, construction of calibration graphs, slope of gradient line, sources of error.*

*Kinetics of reactions.*

*Use of phase diagrams in the understanding of physical processes.*

*Shapes of orbitals. Molecular orbital theory. Understanding of electronegativity in relation to principles of organic reactions*

*Nucleophilic substitution reactions. Nucleophiles, leaving groups. Energetics of the reaction. Comparison of SN1/SN2 reactions mechanisms.*

*Electrophilic aromatic substitution of benzene. Bonding in benzene. Stability of benzene. Electrophilic reagents. Outline of the mechanism*

## Learning Activities

Lectures, tutorials and practical sessions. Computer aided learning.

## References

<b>Course Material</b>	Book
<b>Author</b>	Hunt, A.
<b>Publishing Year</b>	2001
<b>Title</b>	A2 Level Chemistry'
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Hodder and Stoughton
<b>ISBN</b>	0340790628

## Notes

This module will give students a more advanced introduction to pre-degree chemistry that is built upon in other foundation level modules. The module will be supported by practical exercises, workshops and directed study to reinforce concepts in Chemistry.