

Liverpool John Moores University

Title: INTERACTIONS
Status: Definitive
Code: **5002PSSC** (104413)
Version Start Date: 01-08-2016

Owning School/Faculty: Education
Teaching School/Faculty: Education

Team	Leader
Kenneth Clays	Y

Academic Level: FHEQ5
Credit Value: 36
Total Delivered Hours: 86
Total Learning Hours: 360
Private Study: 274

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	25
Off Site	15
Practical	30
Tutorial	1
Workshop	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Exam	30	3
Report	AS2	Practical log book (2700 words equivalent)	30	
Report	AS3	Directed tasks associated with the content of the module (3200 words equivalent)	40	

Aims

This module will develop further understanding of scientific principles relating to

ecosystems and biodiversity, the fundamental role chemistry has played in the creation of materials used in the modern world, and the way matter behaves, and with the application of scientific knowledge to the development of a sustainable environment

Learning Outcomes

After completing the module the student should be able to:

- 1 Explain how DNA is involved in the maintenance of the cell, and in the transmission of inherited characteristics
- 2 Describe and explain the mechanisms involved in mineral recycling and energy transfer in ecosystems and evaluate the impact of man upon them
- 3 Collect, analyse and interpret field data relating to ecological study using a variety of methods
- 4 Describe the methods of obtaining useful products from oil and explain how scientific ideas have underpinned the conversion of raw materials into manufactured products such as plastics
- 5 Make links between the extraction of metals, their reactivity and their uses and explain the chemistry involved
- 6 Describe the nature of radioactivity, explain how it arises and discuss it in relation to society and the natural environment
- 7 Explain common electrostatic phenomena and the behaviour of moving electrons in a circuit in terms of charges and fields, and explain how current and voltage vary in a range of circuits and devices

Learning Outcomes of Assessments

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

EXAM	1	2	3	4	5	6	7
Practical report	1	2	3	4	5	6	7
Written Report	1	2	3	4	5	6	7

Outline Syllabus

The mechanisms of Carbon and Nitrogen cycles in terms of their significance to the biotic and abiotic components of the ecosystem. Tropic relationships, including detritivores

Energy conversion efficiency and its impact upon food webs

Competition and predation

Fieldwork to elucidate the major biotic and abiotic components of an ecosystem, their interactions and consequent impact on adaptive features of organisms present

Cracking: obtaining useful products from oil

Scientists and their involvement in discovering useful chemicals

Hydrocarbons and fuels, plastics, pharmaceuticals

Metals, extraction and reactivity, properties and uses, recycling and pollution

Review of atomic theory as an example of an evolving scientific theory

Intermolecular forces and energy of molecules
Mechanical properties of materials
Electric charge and electrostatic effects
Electric current in simple circuits
Potential difference, resistance
Alternating current
Electromagnetism and alternating current
Electromotive force and electromagnetic induction

Learning Activities

Lectures, Workshops, Fieldwork and Independent study

Notes

The module supports learning about elements of Science National Curriculum and an audit of knowledge and understanding of this content will be made during the module.