

## Liverpool John Moores University

Title: POLLUTION AND SOILS INVESTIGATION  
Status: Definitive  
Code: **5101NATSCI** (112585)  
Version Start Date: 01-08-2016

Owning School/Faculty: Natural Sciences & Psychology  
Teaching School/Faculty: Natural Sciences & Psychology

Team	Leader
Colm Bowe	Y
Kostas Kiriakoulakis	

**Academic Level:** FHEQ5  
**Credit Value:** 24  
**Total Delivered Hours:** 62  
**Total Learning Hours:** 240  
**Private Study:** 178

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	32
Off Site	6
Practical	22

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	exam	exam	40	2
Report	rpt1	soil report	35	
Report	rpt2	marine pollution report	25	

### Aims

*To provide a broad introduction to a) the environmental system of soils; and b) the environmental issue of pollution, using a mixture of lectures, fieldwork and practical laboratory work. Part A aims to introduce the student to the soil system and the methods used to investigate the fundamentals of soil science. Part B aims to identify*

*the main types, sources, fates and impacts of atmospheric, terrestrial and aquatic pollutants.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 identify the important components of the soils, and the sources, fate and toxicity of the most significant environmental pollutants of terrestrial and aquatic ecosystems.
- 2 recognise and describe major processes operating within soils and other environmental media and identify and record their manifestation in the field.
- 3 plan and perform laboratory analysis of soil samples and ecotoxicological assays within a team, record and handle data and communicate findings in a report.
- 4 evaluate, through knowledge of selected case studies, how individuals, populations, communities and ecosystems are affected and respond to environmental pollution.

## **Learning Outcomes of Assessments**

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

EXAM	1	2	4
soil report	1	3	
marine pollution report	1	4	

## **Outline Syllabus**

*Part A 'Soils': introduction to soil and the soil system; soil formation factors; soil physical properties; soil profile description and mapping; soil processes; major soil types; soils of the world; soil ecosystem services.*

*Part B 'Pollution': introduction to environmental pollution; types, sources, fate, toxicity and impacts of pollution in terrestrial, atmospheric, freshwater and marine environments.*

## **Learning Activities**

The module is delivered using a mixture of lecture and practical sessions. Practical sessions involve laboratory and field work.

## **Notes**

This module investigates interaction between soil components and processes and their manifestation in the field, particularly in the context of anthropogenic influences. This is coupled with a broad introduction to pollutants in the wider environment, from

an ecological perspective: identification, accumulation, persistence and toxicity; ecological impacts. Recognition of soil and aquatic pollution in the field and laboratory is supported by ecotoxicological testing of pollutants; prediction of toxicity; laboratory testing and scaling up to ecological systems. Case studies of the effects of environmental pollution on terrestrial and aquatic ecosystems provide the framework of tuition.