

Module Title Toxicology and Environmental Analysis	Reference AS3054 SCQF SCQF Level 9 SCQF Points 15 ECTS Points 7.5 Created May 2002 Approved June 2002 Amended May 2011 Version No. 3
Keywords Pollutants; Biodegradation, Persistence And Accumulation; Biological Responses to Pollutants; Toxicity Testing	

This Version is No Longer Current

The latest version of this module is available [here](#)

Prerequisites for Module

AS2099 or its equivalent

Instrumental analysis of samples, eg. chromatographic and spectrophotometric; case studies interpretation of results and pharmacokinetics; report writing.

Corequisite Modules

None.

Indicative Student Workload

Precluded Modules

None.

<i>Contact Hours</i>	Full Time
Lectures/Tutorials	20
Practical Work	20

Aims of Module

To provide students with knowledge in toxicological absorption, distribution, metabolism and excretion and the ability to assess the impact of polluting substances in ecological systems.

<i>Directed Study</i>	
Case Studies	30
<i>Private Study</i>	
Private Study	80

Mode of Delivery

Basic knowledge will be imparted through lectures, tutorials and practical workshops. Students will

Learning Outcomes for

Module

On completion of this module, students are expected to be able to:

1. Discuss the principal sources, fate and behaviour of chemical pollutants in air, water and land.
2. Explain the features of cell and tissue injury.
3. Discuss biological responses to environmental pollutant including the effects on genetic material and cell growth.
4. Utilise relevant scientific principles, examples and underlying methodologies to answer specific toxicological and analytical problems.

Indicative Module Content

Pollution in the environment: review of natural and unnatural substances, xenobiotics, pollutants, degradation, persistence, accumulation, principle sources and behaviour of pollutants in air, water and land. Impact of pollutants on biological systems: cell and tissue injury caused by pollutants and their manifestations (in microorganisms, plants, animals, humans and ecosystems. Cellular recognition, immune

be expected to contribute through the retrieval and study of relevant case studies.

Assessment Plan

	Learning Outcomes Assessed
Component 1	1,2,3
Component 2	4

Component 2 is assessed by a presentation.

Component 1 is assessed by a closed book exam.

Indicative Bibliography

1. WRIGHT, D. and WELBOURN, P. *Environmental Toxicology*. Current Edition. Cambridge University Press.
2. PHILIPS, R.B. *Ecosystems and Human Health: Toxicology and Environmental Hazards*. Current Edition. CRC Press.
3. NEWMAN, M.C. and UNGER, M.A. *Fundamentals of Ecotoxicology*. Current Edition. CRC Press.

response, defence mechanisms,
biological indicators of pollution
and epidemiological studies,
Toxicity testing, definition of
poisons and poisoning; study of
the time-dose relationship and
route of administration;
distribution, phase 1 and phase 2
metabolism and elimination.