

MODULE DESCRIPTOR

Module Title

Toxicology and Environmental Analysis

| | | | |
|-----------|--------------|-------------|--------|
| Reference | PL3054 | Version | 2 |
| Created | January 2024 | SCQF Level | SCQF 9 |
| Approved | June 2023 | SCQF Points | 15 |
| Amended | August 2024 | ECTS Points | 7.5 |

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.

Learning Outcomes for Module

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

- 1 Interpret the principal sources, fate and behaviour of chemical pollutants in the environment.
- 2 Assess the environmental impact of pollution on the function, health and biodiversity of life.
- 3 Formulate appropriate sustainable practices to reduce pollution in the environment.
- 4 Solve a toxicological and analytical problem appropriately by working as a team.

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). Biological indicators of pollution and epidemiological studies, Toxicity testing, definition of poisons and poisoning; study of the time-dose relationship and route of administration; absorption, distribution, metabolism and elimination. Instrumental analysis of samples, eg. chromatographic and spectrophotometric; case studies interpretation of results and pharmacokinetics. UN Sustainable development goals (SDGs).

Module Delivery

Basic knowledge will be imparted through lectures, tutorials and practical workshops. Students will be expected to contribute through the retrieval and study of relevant case studies.

Indicative Student Workload

| | Full Time | Part Time |
|--|-----------|-----------|
| Contact Hours | 40 | N/A |
| Non-Contact Hours | 110 | N/A |
| Placement/Work-Based Learning Experience [Notional] Hours | N/A | N/A |
| TOTAL | 150 | N/A |
| <i>Actual Placement hours for professional, statutory or regulatory body</i> | | |

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

| | | | | | |
|--------------|--|------------|------|--------------------|------------|
| Type: | Practical Exam | Weighting: | 100% | Outcomes Assessed: | 1, 2, 3, 4 |
| Description: | group oral presentation based on group work that is peer-reviewed. | | | | |

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

Component 1 (CW1) comprises 100% of the module grade. A minimum of a Grade D is required to pass the module.

| Module Grade | Minimum Requirements to achieve Module Grade: |
|--------------|--|
| A | A |
| B | B |
| C | C |
| D | D |
| E | E |
| F | F |
| NS | Non-submission of work by published deadline or non-attendance for examination |

Module Requirements

| | |
|--------------------------|---|
| Prerequisites for Module | Successful completion of Stage 2 of the course or equivalent. |
| Corequisites for module | None. |
| Precluded Modules | None. |

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.