Physiology and Toxicology

Module Information

2022.01, Approved

Summary Information

Module Code	7111PHASCI
Formal Module Title	Physiology and Toxicology
Owning School	Pharmacy & Biomolecular Sciences
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	23
Practical	9
Workshop	6

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To equip students with knowledge of specific aspects of human physiology and relevant mechanisms of toxicity that will provide an understanding of how chemical substances (such as cosmetics) may be taken up by the body and elicit a toxicological effect. The Adverse Outcome Pathway (AOP) framework will be used to rationalise the potential to elicit an effect.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Demonstrate knowledge of physiological systems relevant to the uptake of chemicals through key routes of entry to the body (oral, dermal and respiratory routes).
MLO2	2	Rationalise how exposure to chemicals (including natural products) may elicit a response through an understanding of specific mechanisms of toxicity, the AOP framework and how xenobiotics may affect biological pathways.
MLO3	3	Find and critically evaluate information relating to key events within an AOP, using information from a range of resources (including scientific literature and specialised data repositories) to evidence potential toxicity pathways.
MLO4	4	Demonstrate expertise in understanding and presenting scientific information accurately and concisely.

Module Content

Outline Syllabus	Selected physiological and anatomical systems including skin, hair, nails, eyes, liver, kidney, respiratory tract and the gastro-intestinal tract; significance as routes of exposure and/or sites of interaction between chemicals and biological systems.Uptake of substances via dermal, oral and respiratory routes.Mechanisms by which chemicals may elicit a toxicological effect with reference to specific toxicity endpoints and repeat dose scenarios (for example skin sensitisation, respiratory sensitisation, mutagenicity, hepatotoxicity, endocrine disruption).Sources of data; scientific literature and electronic data repositories.Natural products: effects on skin, anti-oxidant and anti-ageing properties.Laboratory based activities: (1) determination of cell viability using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-2H-tetrazolium bromide (MTT) cytotoxicity assay; (2) Equipment used to generate skin claim data; (3) enzyme kinetics demonstrating the potential impact of metabolism on bioavailability.
Module Overview	Provides knowledge and understanding of human physiology and principles of toxicology, relating to the mechanisms by which chemicals can disrupt normal biological processes and cause toxicity.
Additional Information	None

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Presentation	Poster	50	0	MLO1, MLO3, MLO4, MLO2
Centralised Exam	Examination	50	2	MLO1, MLO4, MLO2

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Amos Fatokun	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings