

Warning: An incomplete or missing proforma may have resulted from system verification processing

Title: Xenobiotics
 Status: Definitive
 Code: **6016BMBMOL** (117422)
 Version Start Date: 01-08-2018

Owning School/Faculty: Pharmacy & Biomolecular Sciences
 Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
Khalid Rahman	Y
Laura Randle	
Kenneth Ritchie	
Kehinde Ross	
Helen Smalley	
Gordon Lowe	

Academic Level: FHEQ6 **Credit Value:** 24 **Total Delivered Hours:** 46
Total Learning Hours: 240 **Private Study:** 194

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	29
Practical	11
Workshop	4

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam		40	2
Report	Report 1		40	
Report	Report 2		20	

Aims

To develop an in-depth knowledge of the physiology and toxicology of xenobiotics in relation to health and disease.

Learning Outcomes

After completing the module the student should be able to:

- 1 Appreciate the importance of xenobiotics in the food industry and discuss their current and future developments
- 2 Evaluate the mode of action of xenobiotics in health and disease
- 3 Demonstrate the mechanisms by which xenobiotics are metabolised and excreted
- 4 Demonstrate the mechanisms of toxicity and methods to identify toxic effects of xenobiotics in major organs
- 5 Handle data and present practical results in the form of a scientific paper

Learning Outcomes of Assessments

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

Exam	1	2	3	4
Practical Report	3	4	5	
Data Handling Report	5			

Outline Syllabus

Historical perspective, demand for xenobiotics, biochemistry, pharmacology and toxicology of xenobiotics in relation to liver, cardiovascular disease, kidney, skin and gastrointestinal system. Bacterial toxicology. Current state and future issues of xenobiotics from a health, disease and commercial perspective.

Learning Activities

Lectures will provide in-depth knowledge of the subject whilst the workshops will help in the development of the basic and advanced principles delivered in the lectures. Data handling will provide an opportunity for the students to critically analyse and present data in the format of a scientific paper.

The practical sessions will introduce techniques used in the field of xenobiotics and will also provide a opportunity to write the results in the format of a paper to be published in the "Journal of Nutrition" thus giving students further experience of writing scientific papers.

Finally, there will also be an opportunity to improve graduate skills in handling spreadsheets and analysing numerical data.

Course Material	Book
Author	Barnes, J., Anderson, L.A., Phillipson, J.D., and Newall, C. A.
Publishing Year	1996
Title	Herbal Medicines: A guide for health care professionals
Subtitle	
Edition	
Publisher	Pharmaceutical Press
ISBN	0853694745

Course Material	Book
Author	Mann, J. and Truswell, S.
Publishing Year	2001
Title	Essentials of human nutrition
Subtitle	
Edition	2nd
Publisher	Oxford University Press
ISBN	0198508611

Course Material	Book
Author	Rapport, L. and Lockwood, B.
Publishing Year	2002
Title	Nutraceuticals
Subtitle	
Edition	
Publisher	Pharmaceutical Press
ISBN	0853695032

Course Material	Book
Author	Boelsterli, U.A.
Publishing Year	2007
Title	Mechanistic Toxicology; the molecular basis of how chemicals disrupt biological targets
Subtitle	
Edition	2nd
Publisher	Taylor and Francis
ISBN	

Course Material	Book
Author	Timbrell, J.A.
Publishing Year	2008
Title	Principles of biochemical toxicology
Subtitle	
Edition	4th
Publisher	Informa Healthcare
ISBN	

Course Material	Book
Author	Casarett and Doull's
Publishing Year	2003
Title	Essentials of toxicology
Subtitle	
Edition	
Publisher	McGraw-Hill
ISBN	

Notes

This module will provide a biochemical, physiological and pharmacological importance of xenobiotics in health and disease. The historical development of xenobiotics, their commercial importance, research methods used in their evaluation and the current and future issues of xenobiotics in health and disease will be discussed. In addition, a detailed background on the causes and consequences of xenobiotic challenge to various organ systems in the human body will be discussed. Teaching will be based upon the basic principles of target organ toxicity and will explore why certain chemicals cause toxicity in selected organs. Biochemical analyses of the mechanisms of action of various toxicants will then be undertaken. Upon consideration of the cells affected by the toxicant the overall effect of the toxicological insult on the organ will be discussed and detection strategies detailed.