

## Liverpool John Moores University

Title: Natural Products Pharmacology and Toxicology  
Status: Definitive  
Code: **7126PHASCI** (128065)  
Version Start Date: 01-08-2021

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

Team	Leader
Amos Fatokun	Y
Jose Prieto Garcia	
Alistair Fielding	
Kenneth Ritchie	
Fyaz Ismail	
Ismini Nakouti	
Gordon Lowe	

**Academic Level:** FHEQ7      **Credit Value:** 20      **Total Delivered Hours:** 42  
**Total Learning Hours:** 200      **Private Study:** 158

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	22
Practical	12
Workshop	6

**Grading Basis:** 50 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Unseen paper covering all materials delivered during Lectures and Workshops as well as Theoretical aspects of laboratory practicals	60	2
Report	Report	Laboratory Report on the Background, Methods, Results,	40	1

Category	Short Description	Description	Weighting (%)	Exam Duration
		Calculations and Interpretation of selected Bioassays		

## Aims

*This module aims to cover the biochemical and medical (pharmacological and toxicological) aspects of natural products.*

*The theoretical Lectures will offer an overview of the major:*

- (1) therapeutical applications of natural products to communicable (antibacterial, antiviral, antiparasitic) and non-communicable diseases (anticancer, neuroprotection, antioxidants);*
- (2) Traditional medicinal systems currently available;*
- (3) toxicological aspects of natural products.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Independently acquire specialised, advanced knowledge and understanding of the application of biological approaches to investigate and predict pharmacological and toxicological properties of natural products.
- 2 Ethically source, systematically locate, critically evaluate, objectively assess and make appropriate use of information from scientific literature and relevant electronic resources on the medicinal use and biological effects of natural products.
- 3 Demonstrate the necessary skills to plan, perform, report and interpret the results of laboratory experiments and analyses applied to the pharmacology and toxicology of natural products.
- 4 Demonstrate advanced understanding of the basis and major contributions to health of the most important Traditional Medicinal Systems currently in use.

## Learning Outcomes of Assessments

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

Exam	1	4
Report	2	3

## Outline Syllabus

- 1. Traditional Chinese Medicine*
- 2. Ayurveda.*
- 3. Western Phytotherapy.*
- 4. Anticancer Natural Products.*
- 5. Antibacterial and antiparasitic Natural Products .*
- 6. Neuroprotective Natural Products .*

7. *Nutraceuticals.*
8. *Regulatory Aspects of Natural Products.*
9. *Biological Implications of Antioxidants.*
10. *Bioassays design.*
11. *Natural Products Toxicology.*

## **Learning Activities**

The theoretical Lectures will offer an overview of the major drivers of natural products research in communicable (antibacterial, antiviral, antiparasitic) and non-communicable diseases (anticancer, neuroprotection, antioxidants).

Laboratory practical lectures (Approx. 3 h each) to give hands-on experience on the associated techniques to research each of these topics. For example, measurements of antioxidant activity, and cell viability assays working under aseptic conditions.

## **Notes**

This module aims to cover the biochemical and medical (traditional, pharmacological and toxicological) aspects of natural products. It will build upon the candidate's previous knowledge acquired in undergraduate and/or postgraduate studies on biology, pharmacology and toxicology.