Module Definition Form (MDF)

Module code: MOD007187	**Version:** 5 **Date Amended:** 06/Dec/2023

1. Module Title
Pharmacology and Translational Medicine (BMS)

2a. Module Leader
Francesca Panin

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	Biomedical Science, Bioinformatics		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Pharmacology is the study of drugs and drug action, where a drug is defined as any molecule which exerts a biochemical or physiological effect on cells, tissue, organs, or organisms. Translational medicine is a rapidly growing discipline in biomedical research that utilises pharmacology to improve the discovery of new diagnostic tools and treatments, using a multi-disciplinary and collaborative "bench-to-bedside" approach. You will be studying the basic mechanisms of drug action, looking in depth at drug-receptor interactions, drug action, and the principles needed to develop successful new drugs. We will be looking at a variety of topics in cell, molecular and systems pharmacology, reflecting current trends in drug development.

We will also focus on how basic research findings from the laboratory can be translated to develop new therapeutics and diagnostic tools for the benefit of patients. We will review the basic principles of drug discovery and development, discussing current aspects of modern pharmaceutical industry approaches such as ethics, genomics, big data management, personalised medicine, pipelines, and clinical trials.

You will thus be equipped with a range of employable skills for your future career, whether it be in research, medicine, drug discovery, or pharmacology.

6b. Outline Content

- Principles of ligand-receptor interaction, local and intracellular messengers and integration of signalling pathways
- Major classes of drug receptors and sites of drug action within the body
- Discussion of typical examples of drugs used to restore physiological functions in different organ systems, to control inflammation and immune responses, and to target bacteria, viruses or malignant cells, and the contribution of drugs to the development of drug resistance
- Basic principles that govern the absorption, distribution and elimination (ADME criteria) of drugs to predict the time course of drug concentrations in the body
- Implications of ADME criteria for the therapeutic use of drugs and limiting their toxicity
- Introduction to toxicology
- Fundamental methods used in pharmacological research
- Basic principles of drug discovery and design
- Bioinformatics approaches for drug design
- Review of the principles of pharmacovigilance, ethics, audit trails, pipelines

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources
None

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Develop the ability to think critically and with an appropriate level of knowledge across a range of pharmacology topics.
2	Knowledge and Understanding	Critically assess different methods used to solve pharmacological problems in the preclinical screening of investigational new drugs, and applications to the bedside.
3	Knowledge and Understanding	Explain how multiple disciplines, including chemistry, biology, cell and molecular biology, and pharmacological sciences and medicine collaborate in the development of new therapeutic interventions
4	Intellectual, practical, affective and transferrable skills	Communicate effectively with a scientific audience in the presentation of case studies of drug development

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	21	1-3	3 x 3 hr + 6 x 2 hr lectures/active learning
Other teacher managed learning	15	1-4	Workshops 6 x 1 hours + 2 x 3 hours practicals + 1 x 3 hr revision
Student managed learning	114	1-4	Background reading, online activities, preparation for lectures and practicals, and completion of assessments
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1-4	60 (%)	Fine Grade	40 (%)
Coursework (Equivalent to 1000 words) (40% Qualifying Mark as stipulated by the IBMS)					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Examination Cambridge	1-3	40 (%)	Fine Grade	40 (%)
1 hour exam (40% Qualifying Mark as stipulated by the IBMS)					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]