Module Definition Form (MDF)

Module code: MOD005032	**Version:** 1 **Date Amended:** 27/Jul/2018

1. Module Title
Medicinal Chemistry and Analytical Techniques

2a. Module Leader
Ibrahim Tolaymat

2b. School
School of Allied Health and Social Care

2c. Faculty
Faculty of Health, Medicine and Social Care

3a. Level
5

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:	None		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module describes the role of medicinal chemistry in the discovery, design and development of therapeutic agents. This involve presenting current approaches to drug discovery including structure-based design, analogue-based design, combinatorial and multiple parallel synthesis. The module will also emphasise the production and characterisation of clinically important drugs from natural sources and the relationship between the chemical structure of a drug and medicinal properties, and the application of docking and scoring functions. Identification of potential drug targets and their exploitation for therapeutic purposes. The principles and applications of spectroscopic techniques in the analysis of pharmaceuticals.
Information from electromagnetic radiation on molecular structure, with emphasis on UV/vis spectroscopy, infra-red spectroscopy and 1H and 13C NMR spectroscopy. The main methods of inorganic analysis and the principles of chromatographic separation.
The module will be delivered as a combination of taught lectures, practical and tutorials. The practical and tutorial sessions will complement the lecture material and will develop laboratory skills and the ability to conduct relevant calculations. On-line study using our Canvas, internet resources and the use of formative on line discussions will be used to encourage student learning and engagement.

6b. Outline Content

Describe and evaluate the processes and approaches of drug discovery and development

Basics of lead optimization towards a safer and more effective drug

Physicochemical properties of drug molecules and how they affect their activities

Describe the production and characterisation of clinically important drugs

Discuss the relationship between the chemical structure of a drug and medicinal properties

Basics and data interpretation of analytical techniques such as chromatographic, spectrophotometric and spectroscopic methods. (infrared spectroscopy, nuclear magnetic resonance, mass spectrometry)

6c. Key Texts/Literature

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

6d. Specialist Learning Resources

Category 2 laboratory; Technical support; Computer laboratory; VLE

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	Evaluate the processes and approaches of drug discovery
2	Knowledge and Understanding	Describe the production and characterisation of different classes of drugs
3	Intellectual, practical, affective and transferrable skills	Discuss the relationship between the chemical structure of a drug and therapeutic and medicinal properties
4	Intellectual, practical, affective and transferrable skills	Analyse and interpret data obtained from key analytical techniques

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2026/7	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	24	1-4	2 h per week
Other teacher managed learning	19	1-4	3 h x 5 laboratory sessions; 1 h x 4 tutorials
Student managed learning	107	1-4	Self- directed study
TOTAL:	150		

9. Assessment for the above Module Occurrence

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-4	100 (%)	Fine Grade	30 (%)

Portfolio that includes an in-class test, a practical element, and an essay (3000 words equivalent)

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]