

Module Specification

Module Title Module Code
Credit Value Level Mode of Delivery Semester
Module Organiser

Pre-requisite modules	Co-requisite modules	Overlapping modules
None	None	None

Content Description

This module introduces the Drug Discovery process and the action of medicinal drugs. It is an integral part of the degree programs in Pharmaceutical Chemistry. Topics covered include identifying drug targets such as receptors and enzymes, drug-target interactions, hit identification and lead optimization. We will also discuss the use of computers and inorganic metals in pharmaceutical and medicinal chemistry. Structure-activity relationships will be explored before biological assays and concentration-response relationships are discussed. Finally, we will look at drug disposition, pharmacokinetics (including ADME) and how to get a drug to the market.

Aims of the module

This module aims to provide students with an introduction to basic concepts in pharmacology/medicinal chemistry and an understanding of the various modes of action of drugs. The roles of such factors in the design of new medicines are illustrated.

Learning Outcomes

Academic Content:	
A 1	Basic concepts in pharmacology including interaction of drugs with receptors, enzymes, ion channels and transport systems; potency, efficacy and selectivity of drugs.
A 2	Routes of drug administration; factors that determine how a drug reaches its site(s) of action what determines the duration of drug action and how this may be manipulated including using prodrugs.
A 3	Pharmacokinetic properties including absorption, distribution, metabolism and excretion (ADME)

Disciplinary skills - able to:	
B 1	Demonstrate an understanding of the concept of a receptor, a second messenger and the basic actions of agonists and antagonists
B 2	Discuss critically the factors controlling drug disposition, including half-life and bioavailability, and interpret pharmacokinetic data. Exemplify and discuss unwanted effects of drugs, including drug-drug interactions.
B 3	Exemplify why some drugs are more amenable to particular drug-administration routes than others.

Attributes:	
C 1	Acquire and apply knowledge relating to the principles and practices of pharmaceutical/medicinal chemistry.
C 2	Explain and argue clearly and concisely.
C 3	Use information for evidence-based decision-making. Produce analyses which are grounded in experimental evidence (e.g. structural, spectroscopic and computational)

Reading List

An Introduction to Medicinal Chemistry by G. L. Patrick (Oxford University Press)
Drug Disposition and Pharmacokinetics by S. H. Curry and R. Whelpton (John Wiley, 2010)
Foye's Principles of Medicinal Chemistry by T. L. Lemke and D. A. Williams (Lippincott Williams & Wilkins)
Pharmacology by H. P. Rang, M. M. Dale, J. M Ritter, R. Flower, R (Churchill Livingstone)
Medical Pharmacology at a Glance by M. J. Neal (Blackwell Science)

Teaching and Learning Profile

Activity Type	KIS Category	Time Spent (in hours)
Lecture	Scheduled	22
Practical Classes and workshops	Scheduled	8
Guided independent study	Independent	120
	Total	150

Activity Type	Total Time Spent (in hours)	Percentage of Time Spent
Scheduled learning and teaching	30	20
Independent Study	120	80
Total	150	100

Assessment Profile

Brief Description of Assessment	Assessment Type	KIS Category	Duration / Length	% Weighting	Final element of assessment?	Qualifying Mark
Coursework	Written assignment	Coursework		20%	No	N/A
Examination	Written Exam	Written	2 h	80%	Yes	N/A

Examination

Examination Duration 2 h / 80 marks total

Section A Compulsory. 50 marks (20 MCQ questions + 30 short answer)

Section B Answer 1 from 2 (30 marks each)

Rubric

Answer ALL questions from Section A and ONE question from Section B.

The total of marks available on the paper is 80, with Section A worth 50 marks, Section B worth 30 marks.

A Periodic Table is provided. A marking scheme is provided for your guidance. A data booklet is also provided, which may contain data and formulae relevant to the questions on this examination paper.

Reassessment

- Standard Reassessment
 Synoptic Reassessment

Synoptic reassessment details		
Brief Description of Assessment	Assessment Type	Duration / Length of Examination / Coursework
Resit Examination	Written Exam	2h

