PHARMACOLOGY: INTRODUCTION TO DRUG ACTION - 2024/5

Module code: BMS2047

Module Overview

The purpose of the module is to introduce the subject of Pharmacology. They will apply their knowledge of Biochemistry and Physiology to understand the mechanism of action of key current drugs. With a particular focus on the following systems: cardiovascular, neurological, anti-inflammatory, -infectives and -cancer. Students will also consider how the body deals with drugs, namely absorption, distribution, metabolism and excretion (ADME).

Module provider

School of Biosciences

Module Leader

TRINDER Sarah (Biosciences)

Number of Credits: 15

ECTS Credits: 7.5

Framework: FHEQ Level 5

Module cap (Maximum number of students): N/A

Overall student workload

Workshop Hours: 5

Independent Learning Hours: 83

Lecture Hours: 12

Tutorial Hours: 17

Laboratory Hours: 1

Guided Learning: 12

Captured Content: 20

Module Availability

Semester 2

Prerequisites / Co-requisites

BMS1032 - Introduction to principles of physiology and practical skills

Module content

Indicative content includes:
• Introduction to drugs and receptors
• Drugs and peripheral nervous system
• Drugs for cardiovascular diseases
• Inflammation and anti-inflammatory drugs
• Central nervous system neurotransmitters
• Anxiolytics and hypnotics
• Anti-epileptic drugs
• Anti-depressants
• Anti-psychotics
• Drugs for motor disorders
• Opioids and centrally-acting analgesics
• Chemotherapy
• Drug absorption, distribution, metabolism & excretion (ADME)
• Pharmacokinetics
• Factors affecting ADME

Assessment pattern

Assessment type	Unit of assessment	Weighting
Coursework	COURSEWORK - ESSAY	30
Examination Online	EXAM - PART A - 50 MCQS - 1 HOUR	35
Examination Online	EXAM - PART B - ONE ESSAY QUESTION (4 HOUR PERIOD)	35

Alternative Assessment

N/A

Assessment Strategy

The assessment strategy is designed to provide students with the opportunity to demonstrate:

Understanding of the topic, and ability to find, evaluate and use additional material to answer the coursework and exam questions.

Thus, the summative assessment for this module consists of:

- Coursework essay. Addressing learning outcomes 1, 2 & 3.
- Exam which consists of two parts:
    - o Part A – MCQ Exam with a duration of 1 hour. Addressing learning outcomes 1, 2, 3 & 4.

- o Part B – 1 essay question. Addressing learning outcomes 1, 2, 3 & 4.

Formative assessment

Coursework tutorials, writing workshops and peer feedback sessions will be timetabled.

As part of this process students will be able to access exemplar essay and in groups consider feedback they would give as well as engage with the grade descriptors to give a mark.

Students will receive feedback on their essay prior to the exam period.

Tutorials and the discussion board will give students plenty of opportunity to engage in a manner that suits them and receive feedback.

General feedback on each question is provided via SurreyLearn so that all students can benefit from it.

Feedback

Students will receive feedback on their essay prior to the exam period.

Tutorials and the discussion board will give students plenty of opportunity to engage in a manner that suits them and receive feedback.

General feedback on each question is provided via SurreyLearn so that all students can benefit from it.

Module aims

- To provide an overview of pharmacology with the emphasis on therapeutically useful drugs
- To provide a framework, based on physiology and biochemistry, for understanding the mechanism of action of drugs

Learning outcomes

		Attributes Developed
001	Describe how drugs can modify the activity of various body systems	KCP
002	Explain the action of drugs can be therapeutically useful and also how this can give rise to side effects	KCP
003	Be familiar with the major classes of drugs in therapeutic use	KCP
004	Know how the body handles drugs, and how this can influence the response of other drugs	KCP
005	Refine and reflect on personal communication skills in relation to learning outcomes 1-4.	PT

Attributes Developed

C - Cognitive/analytical

K - Subject knowledge

T - Transferable skills

P - Professional/Practical skills

Methods of Teaching / Learning

The learning and teaching strategy is designed to:

Introduce students to the key fundamentals of Pharmacology, in particular key terminology with regard to drugs and receptors. Students will then be introduced to key areas such as the cardiovascular system, central and peripheral nervous systems, and how drugs exert their mechanism of action. This is known as Pharmacodynamics – what drugs do to an organism.

Students will also be introduced to Pharmacokinetics – what organisms do to a drug. This is to enable understanding of how a drug is transported, but equally how it transformed and excreted.

The learning and teaching methods include:

Captured video content and supporting tutorials as the majority of this module is delivered in a flipped-classroom format. This is to enable students to attend face-to-face sessions with knowledge of the area and enable greater exploration of depth of the subject and concrete students' understanding. This method of teaching is particularly useful for such an applied subject as Pharmacology.

Organ-bath simulation to enable to see how agonists and antagonists affect function and each other.

Writing workshops to support the writing assessments in this module.

Indicated Lecture Hours (which may also include seminars, tutorials, workshops and other contact time) are approximate and may include in-class tests where one or more of these are an assessment on the module. In-class tests are scheduled/organised separately to taught content and will be published on to student personal timetables, where they apply to taken modules, as soon as they are finalised by central administration. This will usually be after the initial publication of the teaching timetable for the relevant semester.

Reading list

https://readinglists.surrey.ac.uk
Upon accessing the reading list, please search for the module using the module code: BMS2047

Other information

Resourcefulness & resilience

Neuropharmacology is a key part of this module which considers challenging areas of depression, anxiety, schizophrenia - this can be quite emotive but enables students to reflect as well. In the coursework students are required to take concepts taught (anti-virals, NSAIDS & neuropathic pain) and apply to COVID-19. Requiring research skills, reading up to the minute papers, critical engagement. Students are also required to consider the appropriateness and reliability of animal models of disease.

Sustainability

Students are required to consider the appropriateness and reliability of animal models of disease.

Digital capabilities

Use of lab simulation for organ bath experiment.

Students are required to do their own research and will use various online journal databases. Use of various programmes such as Zoom, Surreylearn and Panopto for online interaction and review of content, including use of the discussion board.

Employability

Introduction to principles of Pharmacology (pharmacodynamics and pharmacokinetics) and cell signaling. Key skills in a range of roles. Writing workshops help with communication in the field of scientific writing. As content does not cover the topic of covid directly there is need for criticality of information resourced too, which is a key graduate attribute. The module will enhance employability through knowledge of subject area, problem solving and critical analysis skills - key to employment and success in the professional workplace.

Programmes this module appears in

Programme	Semester	Classification	Qualifying conditions
Biochemistry BSc (Hons)	2	Compulsory	A weighted aggregate mark of 40% is required to pass the module
Biochemistry MSci (Hons)	2	Compulsory	A weighted aggregate mark of 40% is required to pass the module
Biological Sciences (Cellular and Molecular Sciences) BSc (Hons)	2	Compulsory	A weighted aggregate mark of 40% is required to pass the module
Biological Sciences (Infection and Immunity) BSc (Hons)	2	Optional	A weighted aggregate mark of 40% is required to pass the module
Biological Sciences BSc (Hons)	2	Optional	A weighted aggregate mark of 40% is required to pass the module
Biomedical Science BSc (Hons)	2	Compulsory	A weighted aggregate mark of 40% is required to pass the module
Biomedical Science MSci (Hons)	2	Compulsory	A weighted aggregate mark of 40% is required to pass the module
Medicinal Chemistry BSc (Hons)	2	Optional	A weighted aggregate mark of 40% is required to pass the module
Medicinal Chemistry MChem	2	Optional	A weighted aggregate mark of 40% is required to pass the module
Veterinary Biosciences BSc (Hons)	2	Optional	A weighted aggregate mark of 40% is required to pass the module