



## **Module Specification**

### Pharmacology

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## Part 1: Information

**Module title:** Pharmacology

**Module code:** USSJXP-15-2

**Level:** Level 5

**For implementation from:** 2023-24

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**Faculty:** Faculty of Health & Applied Sciences

**Department:** HAS Dept of Applied Sciences

**Partner institutions:** None

**Field:**

**Module type:** Module

**Pre-requisites:** None

**Excluded combinations:** None

**Co-requisites:** None

**Continuing professional development:** No

**Professional, statutory or regulatory body requirements:** None

## Part 2: Description

**Overview:** The module will introduce the basic principles of drug action, the biological basis of diseases states affecting different physiological systems, therapeutic approaches to treating these diseases, and the cellular/molecular mode of action of drugs used.

**Features:** Not applicable

**Educational aims:** See Learning Outcomes.

**Outline syllabus:** Key drug targets including major receptor subtypes, ion channels, transporters, and structure-function relationships.

Pharmacokinetics. Introduction to drug absorption, diffusion, biotransformation and excretion with particular reference to lipid:water, solubility, concentration gradients, routes of administration and explanation of key terms including  $t_{max}$ ,  $C_{max}$ , AUC and  $V_d$ .

Pharmacodynamics: receptor occupancy theory, dose response curves, agonists and antagonists, efficacy, potency and affinity and therapeutic index, Schild plots and  $pA_2$  values.

Selective Toxicity. Introduction to the concept of selective toxicity and the mechanisms by which drugs achieve selectively toxic effects through exploitation of comparative distribution, comparative biochemistry and comparative cytology. Historical perspectives will be considered along with the problem of resistance.

Cytotoxic Agents and Antimicrobials. Introduction to and description of typical cytotoxic drugs and antimicrobials. These drugs will be considered with respect to functionality, mode of action, targets and the limitations of such therapies.

Detailed consideration of the mechanisms of action of anticancer agents.

Pharmacology of the most commonly prescribed and abused drugs and their related body systems.

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** See Assessment.

**Module Learning outcomes:** On successful completion of this module students will achieve the following learning outcomes.

**MO1** Discuss the basic principles of cellular communication; that is, the concept of receptors and how their interaction with endogenous ligands and synthetic drugs is measured

**MO2** Discuss critically pharmacokinetics (drug absorption, distribution, biotransformation and excretion) and pharmacodynamic parameters, including, drug administration

**MO3** Understand the drug development process including toxicity testing and adverse events

**MO4** Discuss critically the principles of selective toxicity and how they are exploited during the use of cytotoxic agents and antimicrobials

**MO5** Explain the relationship between drug structure and function of selected cytotoxic agents and antimicrobials

**MO6** Illustrate the mechanism of action of most commonly prescribed and abused drugs

**Hours to be allocated:** 150

**Contact hours:**

Independent study/self-guided study = 117 hours

Face-to-face learning = 33 hours

Total = 150

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/index.html) via the following link <https://uwe.rl.talis.com/index.html>

## **Part 4: Assessment**

**Assessment strategy:** The assessment strategy for this module is designed to test the breadth and depth of students' knowledge, as well as their ability to analyse, synthesize and summarise information critically, including published research and data from the 'grey' literature. The controlled component is a written exam. The online examination (with a 24 hour submission window) provides students with the

opportunity to demonstrate their knowledge and understanding of the key concepts and paradigms associated with the subject matter, to use examples and other evidence critically to support their arguments.

The written assignment provides the opportunity for the student to complete an in-depth analysis of selected topic from the module syllabus by critically reviewing published research.

Opportunities for formative assessment and feedback are built into the assignment and review of past exam papers.

All work is marked in line with the Department's Generic Assessment Criteria and conforms to the university policies for the setting, collection, marking and return of student work. Assessments are described in the Module handbook that is supplied at the start of module.

**Assessment tasks:****Report (First Sit)**

Description: Scientific report (1500 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

**Examination (Online) (First Sit)**

Description: Online examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

**Report (Resit)**

Description: Scientific report (1500 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

### **Examination (Online) (Resit)**

Description: Online examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

## **Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Applied Biomedical Science [Frenchay] BSc (Hons) 2022-23

Biomedical Science [Frenchay] BSc (Hons) 2022-23

Biomedical Science [Frenchay] MSci 2022-23

Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2021-22

Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22

Biomedical Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2021-22

Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2021-22

Biomedical Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2021-22

Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2020-21

Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2020-21