Module Specification

Drugs and Toxicology

Version: 2025-26, v2.0, 16 Jun 2023

Contents

Part 1: Information

Module title: Drugs and Toxicology

Module code: USSKAV-30-2

Level: Level 5

For implementation from: 2025-26

UWE credit rating: 30

ECTS credit rating: 15

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Chemistry in Context 2025-26

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisite: Students must have passed USSJRT-30-1 Chemistry in Context before starting this module.

This module examines the boundary between a therapeutic agent or medicine and a poison.

Features: Not applicable

Educational aims: The following Generic Graduate Skills will be practiced:

Innovative and Enterprising
Forward Looking
Emotional Intelligence

The following Generic Graduate Skills will be evidenced:

Communication
Professionalism
Critical Thinking
Digital Fluency
Globally Engaged

Outline syllabus: Topics covered include:

The fundamental principles of toxicology. Routes of exposure to chemicals, biological targets for drugs and poisons, potential mechanisms of action and reaction.

Bioassay methods to assess toxicity and potential health and safety hazards of chemicals and/or their environmental impact. Dose-response curves and their interpretation.

The principles and practice of pharmacokinetics and toxicokinetics - Absorption, distribution, biotransformation and excretion of drugs, poisons and toxins. Factors affecting metabolism and the principal biochemical transformations.

Extraction, identification and quantification of drugs and poisons in biological matrices. Screening tests and techniques in analytical toxicology. Consideration of interferences and interpretation issues relating to forensic toxicology.

Genotoxicity and nanotoxicity – The fundamentals of cell proliferation and the role of normal, disordered and altered gene function in diseases, such as leukaemia and

solid tumours. Types of nanomaterial and pulmonary effects.

Selected examples of drugs and poisons derived from natural animal or plant sources and their mechanisms of action.

The origins and mechanisms of toxicity of man-made chemicals, such as pesticides and chemical weapons.

Part 3: Teaching and learning methods

Teaching and learning methods: Students will engage in interactive lectures, which include case studies and facilitated problem solving activities. Practical laboratory sessions will provide experience of techniques relevant to the area and the chemical sciences in general. Practical, sessions will provide opportunities for data handling and interpretation, problem solving and discussions with academic staff. Lectorials will provide contexts and overviews of topics to guide student-centred learning.

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

MO1 Communicate an appropriate level of understanding of the range and variation of toxic materials, and of their occurrence and possible routes of entry into the body

MO2 Describe the sources, development, administration and toxicology of drugs, poisons and toxic materials.

MO3 Discuss the significance of bioassay methods, pharmacokinetics and screening on assessing the toxicity of chemicals, drugs and poisons.

MO4 Undertake practical work to examine the characteristics of medicines/toxins, and present, analyse and interpret these data

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 234 hours

Face-to-face learning = 66 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/usskav-30-2.html

Part 4: Assessment

Assessment strategy: Assessment 1 is a 3000 word report, consisting of two practical laboratory reports and associated questions. Successful completion of this assessment requires the detailed recording of data followed by analysis, interpretation and discussion of these data. The recording and analysis of laboratory data is a vital skill for forensic science students consequently this assessment can described as an assessment to enhance employability and learning.

Assessment 2 is a 24 hour online exam. This assessment will provide students with an opportunity to demonstrate their knowledge and understanding across a broad range of topics.

Assessment tasks:

Examination (Online) (First Sit)
Description: Online examination (24 hours)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Laboratory Report (First Sit)
Description: Practical Laboratory Reports
Weighting: 50 %
Final assessment: No
Group work: No

Learning outcomes tested: MO4

Examination (Online) (Resit)
Description: Online examination (24 hours)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Laboratory Report (Resit)
Description: Practical Laboratory Reports
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Forensic Science {Foundation} [Frenchay] BSc (Hons) 2023-24

Forensic Science {Foundation} [Frenchay] MSci 2023-24

Forensic Science [Frenchay] - Withdrawn MSci 2024-25

Forensic Science [Frenchay] BSc (Hons) 2024-25