



CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Drugs and Toxicology				
Module Code	USSKAV-30-2	Level	2	Version	1
Owning Faculty	Health & Applied Sciences	Field	Biological, Biomedical & Analytical Sciences		
Contributes towards	BSc Forensic Science				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites	USSJRT-30-1 Chemistry in Context	Co- requisites	none		
Excluded Combinations	Drugs & Disease	Module Entry requirements	N/A		
Valid From	October 2015	Valid to	September 2021		

<b>CAP Approval Date</b>	28/03/2014
--------------------------	------------

Part 2: Learning and Teaching	
<b>Learning Outcomes</b>	<p>On successful completion of this module students will be able to:</p> <ul style="list-style-type: none"> <li>• 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 (assessed in Components A1, B2).</li> <li>• Describe the sources, development, formulation, control and administration of drugs, poisons and toxic materials (assessed in Components A1, B1).</li> <li>• Discuss the significance of chemical properties and concentration gradients of potential drugs and poisons, to absorption, distribution, biotransformation and excretion (that is, pharmacokinetics) (assessed in Components A1, B1).</li> <li>• Undertake practical work to examine the characteristics of medicines/toxins, and present, analyse and interpret these data (assessed in Component B1).</li> </ul>
<b>Syllabus Outline</b>	<p><b>This module examines the boundary between a therapeutic agent or medicine and a poison</b></p> <p>Origins and characteristics of poisons/medicines, including exposure/administration.</p> <p>The cholinergic system – weaponised chemicals to medicines.</p> <p>The principles and practice of pharmacokinetics &amp; pharmacodynamics. Metabolism of drugs and toxins - absorption, distribution, biotransformation and excretion.</p>

	<p>The identification and quantification of drugs and poisons in biological fluids. Consideration of interferences and interpretation issues relating to forensic toxicology.</p> <p>The fundamental concepts of molecular biology and molecular genetics and their impact upon drug discovery, development and toxicology.</p> <p>The concept of selective toxicity and the mechanisms by which drugs achieve selectively toxic effects..</p> <p>Genotoxic agents - fundamentals of cell proliferation and the role of normal, disordered and altered gene function in diseases such as leukaemia and solid tumours.</p> <p>Synergy and antagonism between chemicals within the body.</p> <p>The foundational principles and mechanisms of toxicology in relation to drug safety evaluation.</p>
<b>Contact Hours</b>	<p>The contact hours (72) are distributed as follows:</p> <p>36 Lectures = 36 hours  6 Workshops @ 3 hour = 18 hours  6 Practicals @ 3 hours/practical = 18 hours</p>
<b>Teaching and Learning Methods</b>	<p>A variety of learning approaches will be used. Taught sessions will utilise TEL where possible, to support a pedagogy of Inductive Learning where the students will engage in facilitated activities such as lectorials, debates, case studies, problem based learning etc. Practical laboratory sessions will provide experience of techniques relevant to the area and the chemical sciences in general.</p> <p>Practical, and workshop 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. Wherever possible, lectorials are supplemented by audio-visual material (e.g. BoB) showing specific examples relevant to toxicology and its practice based context.</p> <p>Student independent learning (&gt;70% of module allocated time) will be supported with interactive revision material, practical workbooks, and the University's E-Learning Environment (Blackboard).</p> <p><b>Scheduled learning</b> includes lectorials, workshops, and laboratory practical classes.</p> <p><b>Independent learning</b> includes hours engaged with essential reading, assignment preparation and completion. Students will be encouraged to use a facilitated online collaborative working approach (such as a wiki) to support the group project working. These sessions constitute an average time per level as indicated in the table below.</p>
<b>Key Information Sets Information</b>	<p>Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which a requirement is set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for.</p>

Key Information Set - Module data				
Number of credits for this module				30
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours
300	72	228		300

The table below indicates as a percentage the total assessment of the module which constitutes a -

**Written Exam:** Unseen written exam,  
**Coursework:** Practical Portfolio and Case Study

Total assessment of the module:		
Written exam assessment percentage		50%
Coursework assessment percentage		50%
		100%

### Reading Strategy

All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.

Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.

If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication will be given regarding how to access them and, if appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases.

A detailed reading list will be made available through relevant channels, e.g. module handbooks, Blackboard, etc.

### Indicative Reading List

Johll, M. (2008) *Investigating Chemistry: A forensic Science Perspective*. New York: W.H. Freeman.

Moynihan, H., & Crean, A. (2009) *The Physicochemical Basis of Pharmaceuticals*. Oxford: Oxford University Press.

Timbrell, J. (2003) *Introduction to Toxicology*. 3rd ed. London: Taylor & Francis

Timbrell, J. (2009) *Principles of Biochemical Toxicology*. 4th ed. London: Taylor & Francis.

The above two books are available in electronic format free of charge through the library.

Selected directed reading from the following:

Zedeck, B.E. and Zedeck, M.S. (2007) *Forensic Pharmacology*. New York: Chelsea House.

Stripp, R.A. (2007) *The Forensic Aspects of Poisons*. New York: Chelsea House.

Neal, M.J. (2009) *Medical Pharmacology at a Glance*. 6th ed. London: Blackwell Publishing.

Dale, M.M. and Haylett, D.G. (2004) *Pharmacology Condensed*. London: Churchill Livingstone.

Rang, H.P., Dale, M.M., Ritter, J.M. and Moore, P.K. (2003) *Pharmacology*, 5th ed., London: Churchill Livingstone.

Relevant chapters in:

Siegal, J.A. (2013) *Encyclopedia of Forensic Sciences*, [online] 2nd Ed Academic Press and

Shepherd, R. (2011) *Simpson's Forensic Medicine* 13th ed Oxford: Hodder Arnold.

### Part 3: Assessment

#### Assessment Strategy

The Assessment Strategy has been designed to support and enhance the development of both subject-based and employability skills, whilst ensuring that the modules Learning Outcomes are attained, as described below.

The coursework comprises two elements

The first is a Practical Portfolio which is based on the laboratory and workshop series. Successful completion of this element 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 science students consequently this assessment can be described as an assessment to enhance employability and learning.

The second element is an in-session assessment of a research literature review which has been directed by tutors. Students will be given advice on appropriate techniques for collecting, identifying and assimilating data. The ability to assess and digest research data is a highly sought after graduate skill.

The controlled component is a written exam. The exam will be 2 hours duration which is consistent with the Department's assessment strategy for Level 2 modules. This assessment will provide students with an opportunity to demonstrate both their knowledge on a broad range of topics through a series of short answer questions, and more in-depth knowledge through a selection of medium length questions. This assessment will test a range of the learning outcomes and will provide a valuable learning experience through recalling and demonstrating knowledge which will be of benefit when progressing to final year modules.

Formative feedback is available to students throughout the module through group discussions, practical classes and in workshops. Students are

	<p>provided with formative feed-forward for their exam through a revision and exam preparation session prior to the exam and through the extensive support materials supplied through Blackboard.</p> <p>All work is marked in line with the Department's Generic Assessment Criteria and conforms to university policies for the setting, collection, marking and return of student work. Where an individual piece of work has specific assessment criteria, this is supplied to the students when the work is set.</p>
--	---

Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	<b>A:</b>	<b>B:</b>
	<b>50%</b>	<b>50%</b>
<b>First Sit</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> (as % of component)	
1. Written examination (3hr)	100%	
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> (as % of component)	
1. Laboratory portfolio	67%	
2. Literature Case Study	33%	

<b>Resit (further attendance at taught classes is not required)</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> (as % of component)	
1. Written examination (3hr)	100%	
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> (as % of component)	
1. Written Portfolio (2000 words)	100%	
<p>If a student is permitted an <b>EXCEPTIONAL RETAKE</b> of the module the assessment will be that indicated by the Module Description at the time that retake commences.</p>		