ASTON UNIVERSITY PROGRAMME SPECIFICATION 2012-2013

Programme Title	MSc Occupational Toxicology
UCAS/JACS Code	
School/Subject Area	LHS, Pharmacy
Final Award	MSc
Interim Award(s)	Diploma and Certificate
Mode(s) of Study	FT
Normal Length of Programme	1 year FT
Total Credits	180
Programme Accredited By	N/A
Dates Programme Specification Written and Revised	June 2012

Educational Aims of the Programme	The principal aim of the programme is to provide students with an understanding of the basis of Occupational Toxicology, as well as an overview of the general area of Toxicology and its applications that are concerned with the scientific, professional and medical arenas. The students should be able to fully understand basic concepts and contribute to all the main applications of the subject. 1. Provide students with an overview of the main tenets of toxicology as it relates to pharmacology, biochemistry, physiology, chemistry, chemotherapy and drug discovery. 2. Develop the students' understanding of the concept of 'change in structure leads to change in function' in response to toxic pressure. 3. Outline the methods by which toxins exert their effects: the clear distinction will be drawn between direct and biotransformationally –mediated toxins. 4. Provide a comprehensive understanding of the role and processes concerned with biotransformation and their place in human toxicity. 5. Provide a focus for the application of toxicological theory and practice in some of the main areas of the subject, such as Regulatory, and Forensic toxicology, with particular emphasis on Occupational Toxicology, ranging from cellular mechanisms to clinical, personal and social consequences. 6. Provide hands-on experience of some cellular toxicological assessment methods in the laboratory and the role of alternative methods in toxicological evaluation 7. Develop research and transferable skills relevant to toxicology in preparation for a career in any of the main sub-areas of toxicology. 8. Develop students' understanding of advanced research methodology to enable them to carry out independent work of publishable standard

Relevant Subject Benchmark Statements and other External and Internal Reference Points used to inform programme outcomes	Framework for Higher Education Qualifications

Programme Structures and Requirements: Levels, Modules and Credits				
Module Title	Credits	Level	Module Code	Core / Elective
Research Methods 1: Professional Development	10	7	BI4001	Core
Research Methods 2: Communication Skills	10	7	BI4002	Core
Drug Discovery	20	7	PHM008	Core
Chemotherapy and Selective Toxicity	20	7	PHM009	Core

Introduction to Toxicology	20	7	TOX 1*	Core
[1]Advanced Toxicology	20	7	TOX 2*	Core
Research Project	60	7	PHM012	Core
Literature Review	20	7	PHM013	Core
TOTAL	**180**			

Programme Outcomes, Learning and Teaching and Assessment Strategies			
	A. Knowledge and Understanding		
	On successful completion of their programme, students are expected to have knowledge and understanding of:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	The basis for the selective action of anti-infective agents (Aim 1)	Lectures, essay, CAL classes, seminar [PHM009]	Examination [PHM009] Essay [PHM009] Seminar [PHM009]
2	The basis for cancer chemotherapy (Aim 1)	Lectures, essay, CAL classes, seminar [PHM009]	Examination [PHM009] Essay [PHM009] Seminar [PHM009]
3	Basic principles of toxicology (Aims 1&2)	Lectures, practicals, Foucssed toxin profiles (TOX 1)	Examination, Profiles, practicals (TOX 1)
4	An overview of the cross-disciplinary nature of drug discovery and toxicology (Aim 1)	Lectures, essay, seminar [PHM008]	Examination [PHM008] Essay [PHM008] Seminar [PHM008]
5	Ability to recognise and address ethical issues relevant to conducting research (Aim 8)	Seminar Group Discussion Directed and independent Study in both individual and group formats [BI4001]	Ethics Proposal [BI4001] Written CV [BI4001]
6	Potential sources and techniques used for obtaining research funding (Aim 8)		
7	The importance of communication skills to professional development (Aim 7)		
8	The necessary constituents and presentation style for written and oral academic presentations (Aim 8)	Seminar Group discussion Directed and independent study at both the	Research Abstract [BI4002] Poster Presentation [PHM012]

[1] (***** denotes provisional name of toxicology modules)

		individual and group level [BI4002]	
9	The requirements and processes involved in publishing research (Aim 8)		Research Abstract [BI4002] Critical Review [PHM012]
10	Advanced appreciation of sub-areas of toxicology (Regulatory, mechanistic, occupational, forensic and clinical) and the application of basic toxicological concepts therein.	Lectures, practical classes, group discussion, directed and independent study in both individual and group formats (TOX 1 & 2)	Examination (TOX 1& 2) Coursework submission (TOX 1& 2)
11	Pharmacokinetics and bio-distribution in the context of drug delivery and dosage forms (Aim 3)		
12	Multidisciplinary basis of toxicology in life sciences	as above	as above

B.	Intellectual Skills		
	On successful completion of their programme, students are expected to be able to:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	synthesise knowledge from a variety of disciplines (Aims 1, 2, 3 & 4)	Lectures [PHM009, PHM008, PHM010, TOX 1 & 2] CAL [PHM009, Essay [PHM009, PHM008] Seminars [PHM009, PHM008, TOX 2]	Examination [PHM009, PHM008, PHM010, TOX 1 & 2] Essay [PHM009, PHM008] Seminar [PHM009, PHM008, TOX 2]
2	analyse critically the differences in biochemical processes between the host and infectious organisms or cancer cells. (Aim 2)	Lectures, CAL classes, essay and seminars [PHM009, PHM008]	Examination [PHM009, PHM008] Essay [PHM009, PHM008] Seminar [PHM009, PHM008]
3	identify appropriate data to be acquired and the corresponding appropriate methods (Aim 5)	Lectures, practicals [TOX 1]	Examination (TOX 1) Practical reports (TOX 1) Seminar (TOX 2)
4	analyse data and apply statistics (Aim 5)	Practicals [TOX 1]	Practical reports [TOX1]
5	analyse critically one's own and others' work (Aim 8)	Discussions with supervisor during extended project [PHM012]	Poster presentation [PHM012] Project report [PHM012]
6	read critically and evaluate scientific literature.	Essay [PHM009] Focussed Occupational Toxin Profile [TOX 1] Assessed Case Histories [TOX 2] Seminar [PHM009, PHM008, Project [PHM012] Lecture, group discussion, directed and independen study at an individual level [BI4002]	Essay [PHM009, PHM008] Focussed Occupational Toxin Profile [TOX 1] Assessed Case Histories [TOX 2] Seminar [PHM009, PHM008] Project report [PHM012] Research Abstract [BI4002] Poster Presentation [PHM012] Critical Review [PHM012]

	C. Professional Skills		
	On successful completion of their programme, students are expected to be able to:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	Design and interpret toxicological assessments either through practical research or literature review: write toxicological assessment reports suitable for use in UK Legal proceedings	Lectures/Practicals/Focussed Toxin profiles [TOX 1] Lectures/Practicals/Assessed Case Histories [TOX 2]	Focussed Toxin profiles [TOX1] Assessed Case Histories [TOX 2]
2	operate across the discipline boundaries in the field of drug discovery. (Aims 1, 2, 3, 4 & 5)	Lectures [PHM009, PHM008,] Essay [PHM009, PHM008,] Seminars [PHM009, PHM008,]	Examination [PHM008] Essay [PHM008] Seminar [PHM008]
3	write grant applications, conduct a risk assessments and complete an ethics proposal for submission to a review board. (Aims 6 & 7)	Seminar Group Discussion Group and independent study [BI4001]	Ethics Proposal [BI4001]
4	communicate effectively to other academics and to students. (Aims 6 & 7)	Seminar Group Discussion Directed and independent Study at an individual level [BI4002]	Research Abstract [BI4002] Poster Presentation [PHM012]

	D. Transferable Skills		
	On successful completion of their programme, students are expected to show:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	Effective written communication (Aim 6-8)	Essay [PHM009, BI4001] Lecture, group discussion, directed and independent study at an individual level [BI4002] Focussed Toxin profiles [TOX 1] Lectures/Practicals/Assessed Case Histories [TOX 2]	Examination [PHM009, Essay [PHM009] Project report [PHM012] Poster presentation [PHM012, BI4002] Ethics proposal [BI4001] Written CV [BI4001] Research Abstract [BI4002] Focussed Toxin profiles [TOX 1] Lectures/Practicals/Assessed Case Histories [TOX 2]
2	Effective oral communication (Aim 7)	Seminar [PHM009, TOX 2, BI4001] Lecture, group discussion, directed and independent study at an individual level [BI4002]	Seminar [PHM008, PHM009,TOX 2]
3	Independent study, including good time management (all aims)	Directed reading (all modules).	D5 is assessed in all submitted coursework.
4	Job interview skills (Aim 6)	Seminar Group Discussion Independent Study [BI4001]	Written CV [BI4001]
5	IT Skills / Powerpoint presentation (Aim 6)	CAL classes [PHM009, BI4011] Seminar Group Discussion Independent Study [BI4001, TOX 2]	Seminar [PHM008, PHM009, TOX 2]

Entry Requirements	Applicants must hold at least a 2nd class honours degree in a chemistry or biology-based subject e.g., pharmacology, chemistry, biochemistry, pharmacy, biomedical sciences or biological chemistry from a UK University, or when outside the UK a degree or qualification deemed to be at least of equivalent standing. Students whose first language is not English must demonstrate a satisfactory command of written and spoken English. For international students this is demonstrated by an IELTS (or equivalent) score of 6.5 or higher overall, but with no score below a 6.0.

Programme Regulations	The programme is governed by the General Regulations for Postgraduate Taught Programmes; in addition the following Regulations also apply. <u>Failure in modules</u> Students who fail to pass 180 credits may be eligible for the award of Postgraduate Diploma or Certificate if they have passed a minimum of 120 or 60 credits respectively.

This specification provides a concise summary of the main features of the programme and the threshold learning outcomes that a student might normally be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. The individual modules included in the programme may differ from those included in this programme specification as our programmes are subject to continuous review. Information on admissions requirements and career opportunities is available in the relevant prospectus. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the appropriate module guides and programme handbook(s) that are available to students on enrolment.