



## CORPORATE AND ACADEMIC SERVICES

## PROGRAMME SPECIFICATION

Part 1: Basic Data	
<b>Awarding Institution</b>	UWE
<b>Teaching Institution</b>	UWE (optional 2 <sup>nd</sup> year delivered by Virginia Commonwealth University)
<b>Delivery Location</b>	UWE, Frenchay Campus (optional 2 <sup>nd</sup> year, Richmond, Virginia, USA)
<b>Faculty responsible for programme</b>	Faculty of Health and Applied Sciences
<b>Department responsible for programme</b>	Department of Biological, Biomedical and Analytical Sciences
<b>Modular Scheme Title</b>	
<b>Professional Statutory or Regulatory Body Links</b>	Accredited by The Forensic Science Society – full reaccreditation 2011
<b>Highest Award Title</b>	BSc (Hons) Forensic Science
<b>Default Award Title</b>	
<b>Fall-back Award Title</b>	
<b>Interim Award Titles</b>	Cert.HE in Forensic Science Dip.HE in Forensic Science BSc Forensic Science
<b>UWE Progression Route</b>	FdSc Forensic Science, Yeovil College
<b>Mode(s) of Delivery</b>	FT/PT
<b>Codes</b>	<b>UCAS: F410</b> <b>JACS: F410</b> <b>ISIS2:</b> <b>HESA:</b>
<b>Relevant QAA Subject Benchmark Statements</b>	Chemistry, Biosciences, Forensic Science –currently in draft form for consultation
<b>CAP Approval Date</b>	January 2013
<b>Valid from</b>	January 2013
<b>Valid until Date</b>	01/01/2018
<b>Version</b>	1

## Part 2: Educational Aims of the Programme

The BSc (Hons) Forensic Science programme provides an opportunity for students to explore the theory and practice of forensic science. In addition to offering the basis of vocational careers in forensic science, this programme provides a wider base of scientific skills, together with important generic graduate skills, particularly in an analytical approach to problems. Students may select optional modules in years 2 and 3 to specialise in either Chemistry or Biology, or maintain a balance of both subject areas.

The design of the programme enables the students to:

- i) study the breadth of forensic science from scenes of crime issues to court room presentations, and
- ii) pursue the analytical themes in chemical and biological science which are both appropriate to forensic science and which also underpin a variety of other emerging areas of scientific work.

The specific aims of the programme are to:

- Provide the educational and resource environment which will enable students with a science background to develop
  - a practical and theoretical understanding of forensic science, which includes Biology and Chemistry,
  - the skills of a literate and numerate student capable of independent learning, and
  - the ability to engage in constructive critical analysis
- Create a friendly and supportive atmosphere that will enable individual students to use the learning experience at UWE to create a graduate foundation, on which they can develop their future careers and on-going social and educational development.
- Provide a curriculum that is enhanced by a balance of experience from both consultancy and research.

In addition to the above, the International Variant of this programme provides the opportunity for study abroad with general and specific benefits. The experience of a different educational as well as social culture and the contacts made with professionals in another country are of great potential value to students. The UK and the USA are two of the countries using the most advanced technology in Forensic Science, and the complementary specialist expertise of academics at VCU to those at UWE provide additional educational benefit to students on this programme.

## Programme requirements for the purposes of the Higher Education Achievement Record (HEAR)

Successful graduates will have a strong foundation of Biology, Chemistry, Statistics, Crime Scene Skills and legal aspects of forensic evidence and will benefit from using specialist forensic and chemical instrumentation. Graduates will have carried out investigations of mock indoor, outdoor and vehicle crime scenes and taken a mock case from 'crime scene to court'. This requires excellent analytical, communication and time management skills. Graduates will have undertaken an independent research project in an area related to forensic science. They will have experience in the qualitative and quantitative interpretation of scientific results and numerical data, a vital part of forensic science.

**Part 3: Learning Outcomes of the Programme**

The award route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas:

<b>Learning Outcomes:</b>	Module No: USSJRT-30-1	Module No: USSJRV-30-1	Module No: USSJRU-30-1	Module No: USSJRW-30-1	Module No: USSJN6-20-2	Module No: USSJ7P-20-2	Module No: USSJ7T-20-2	Module No: USSJ4Y-20-2	Module No: USSJ4C-20-2	Module No: USSJNG-20-2	Module No: USSJ8A-20-2
<b>A) Knowledge and understanding of:</b>											
The scope and nature of scientific evidence, its value to society and the roles and responsibilities of forensic scientists.		X			X		X			X	
The techniques used in crime scene investigation.		X			X						
The theory and application of the principal laboratory methods used routinely in forensic science.		X		X	X	X	X			X	
Principles and procedures relating to the interpretation, evaluation and presentation of evidence.		X			X	X	X			X	
Wider aspects of science associated with forensic science and studies, especially Biology and Chemistry.	X	X	X	X	X	X	X	X	X	X	X
Methodology of scientific inquiry and research.		X		X		X	X		X		
The range of techniques used for the extraction and analysis of DNA.		X							X		
The principles and procedures used in chemical analysis and the characterisation of chemical compounds.	X	X		X	X	X				X	X
The facts, principles, practices and applications of organic, inorganic and physical chemistry.	X	X		X	X	X				X	X
The explanation of biological phenomena at a variety of levels from biological molecules to whole organisms.			X					X	X		
Gene expression, with detailed knowledge of specific examples.			X					X	X		
Human physiology, pathology, disease and pharmacology.			X					X		X	X
<b>(B) Intellectual Skills</b>											
Select appropriate strategies, techniques and procedures for the examination of a scene of crime.		X			X						
Select appropriate strategies, techniques and procedures for the examination of forensic evidence.		X			X	X				X	
Interpret and evaluate evidence and report on it appropriately.		X			X		X				

**Part 3: Learning Outcomes of the Programme**

Recognise and apply subject-specific theories, paradigms, concepts or principles.	X	X	X	X	X	X	X	X	X	X	X
Critically analyse, synthesise and summarise information, including published research or reports, and use several lines of information to form and test hypotheses.							X				
Recognise the moral and ethical issues of investigations and appreciating the need for ethical standards and professional codes of conduct.								X	X		
Recognise and implement good measurement science and practice.		X		X	X	X	X				
<b>(C) Subject/Professional/Practical Skills</b>											
Plan and safely execute scientific investigations, including a programme of independent research.											
Obtain, record, collate and critically analyse data using appropriate techniques in the field and/or laboratory.	X	X	X		X	X					X
Handle, analyse and report forensic samples with awareness of validity and contamination issues.		X			X						
Communicate results and their interpretation clearly and unambiguously.	X	X	X	X	X	X	X	X	X		
Synthesise a variety of appropriate skills to meet the requirements of forensic analysis.		X			X	X					
Adhere to safe working practices.	X	X	X	X	X	X		X	X	X	X
Comply with ethical, legal and quality assurance principles such as the chain of custody.		X			X			X	X		
Conduct standard laboratory procedures for synthetic and analytical work and competently operate standard equipment.	X	X		X	X	X		X	X		X
<b>(D) Transferable skills and other attributes</b>											
Evaluate their own academic performance and plan work accordingly.											
Study independently in a variety of learning styles.	X	X	X	X	X	X	X	X	X	X	X
Work effectively as a team member.		X			X		X		X		
Practise good time management, prioritise workloads and recognise deadlines.									X		
Communicate effectively in a variety of media and contexts; in particular, express the interpretation of results in a manner comprehensible to the intended recipient and write comprehensive, comprehensible, rational and impartial reports.			X			X			X		
Use mathematical and statistical methods effectively in problem solving.				X			X				
Use a variety of IT skills for data processing, communicating and supporting scientific research.	X	X	X	X	X	X	X	X	X	X	X

**Continued:**

**Part 3: Learning Outcomes of the Programme**

<b>Learning Outcomes:</b>	Module No: UJUTD5-20-2	Module No: USSJ73-40-3	Module No: USSJRS-40-3	Module No: USSJUV-20-3	Module No: USSJJU-20-3	Module No: USSJ8G-20-3	Module No: USSJJQ-20-3	Module No: USSJJR-20-3	Module No: USSJGP-20-3	Module No: USSJGR-20-3	Module No: USSJH5-20-3	Module No: USSJJS-20-3
<b>A) Knowledge and understanding of:</b>												
The scope and nature of scientific evidence, its value to society and the roles and responsibilities of forensic scientists.	X		X			X				X	X	
The techniques used in crime scene investigation.			X								X	
The theory and application of the principal laboratory methods used routinely in forensic science.			X			X					X	
Principles and procedures relating to the interpretation, evaluation and presentation of evidence.	X		X			X					X	
Wider aspects of science associated with forensic science and studies.		X	X	X	X	X	X	X	X	X	X	X
Methodology of scientific inquiry and research.		X	X	X					X	X		
The range of techniques used for the extraction and analysis of DNA.			X									
The principles and procedures used in chemical analysis and the characterisation of chemical compounds.			X			X			X		X	
The facts, principles, practices and applications of organic, inorganic and physical chemistry <sup>C</sup> .			X			X			X		X	
The explanation of biological phenomena at a variety of levels from biological molecules to whole organisms.				X	X			X	X			X
Gene expression, with detailed knowledge of specific examples.				X	X							X
Human physiology, pathology, disease and pharmacology.			X		X		X	X	X			
<b>(B) Intellectual Skills</b>												
Select appropriate strategies, techniques and procedures for the examination of a scene of crime.			X								X	
Select appropriate strategies, techniques and procedures for the examination of forensic evidence.			X			X					X	
Interpret and evaluate evidence and report on it appropriately.	X		X								X	
Recognise and apply subject-specific theories, paradigms, concepts or principles.	X	X	X	X	X	X	X	X	X	X	X	X

**Part 3: Learning Outcomes of the Programme**

Critically analyse, synthesise and summarise information, including published research or reports, and use several lines of information to form and test hypotheses.		X			X					X		
Recognise the moral and ethical issues of investigations and appreciating the need for ethical standards and professional codes of conduct.	X	X	X							X		
Recognise and implement good measurement science and practice.		X			X	X						X
<b>(C) Subject/Professional/Practical Skills</b>												
Plan and safely execute scientific investigations, including a programme of independent research.		X	X		X							
Obtain, record, collate and critically analyse data using appropriate techniques in the field and/or laboratory.		X	X	X		X			X			X
Handle, analyse and report forensic samples with awareness of validity and contamination issues.			X									X
Communicate results and their interpretation clearly and unambiguously.	X	X	X	X		X		X	X	X	X	X
Synthesise a variety of appropriate skills to meet the requirements of forensic analysis.			X									
Adhere to safe working practices.		X	X	X	X	X	X		X	X	X	X
Comply with ethical, legal and quality assurance principles such as the chain of custody.	X	X	X									
Conduct standard laboratory procedures for synthetic and analytical work and competently operate standard equipment.			X	X		X			X			X
<b>(D) Transferable skills and other attributes</b>												
Evaluate their own academic performance and plan work accordingly.		X	X									
Study independently in a variety of learning styles.	X	X	X	X	X	X	X	X	X	X	X	X
Work effectively as a team member.			X		X							
Practise good time management, prioritise workloads and recognise deadlines.		X	X									
Communicate effectively in a variety of media and contexts; in particular, express the interpretation of results in a manner comprehensible to the intended recipient and write comprehensive, comprehensible, rational and impartial reports.	X	X	X		X	X				X	X	
Use mathematical and statistical methods effectively in problem solving.												
Use a variety of IT skills for data processing, communicating and supporting scientific research.	X	X	X	X	X	X	X	X	X	X	X	X

**Part 4: Student Learning and Student Support****Teaching and learning strategies to enable learning outcomes to be achieved and demonstrated**

Students are supported by the programme team from induction to graduation and beyond. During induction students are provided with handbooks, which as well as providing important details on the programme content and assessment give detail of the support systems available to help students achieve their potential. This takes the form of academic support provided by the Personal Tutor and Programme Manager, both of whom students meet in their first week, and pastoral support from our student advisers and Wellbeing Services. Students are also advised on obtaining reasonable adjustments for disabilities, maternity or paternity periods from Disability Services.

Course developments are informed by a Strategic Employers Group incorporating members of the Police Service and local and national forensic providers. We also participate in a STEM (a national Science, Technology, Engineering and Mathematics group) employment project, an initiative which brings students into direct dialogue with employers in the areas of DNA and chemical analysis. Students are further assisted in obtaining employment by the UWE Careers Service and the specialist academic support they receive during the employability focused level 2 tutor group system.

All students on the course are encouraged to take up student membership of the Forensic Science Society and also have the opportunity to join our excellent Forensic Science Club. The latter has hosted national conferences, workshops and guest lectures as well as regular social events.

At UWE, Bristol there is a policy for a minimum average requirement of 12 hours/week contact time over the course of the full undergraduate programme. This contact time encompasses a range of face to face activities as described below. In addition a range of other learning activities will be embedded within the programme which, together with the contact time, will enable learning outcomes to be achieved and demonstrated.

On the Forensic Science programme teaching is a mix of scheduled and independent learning.

**Scheduled learning** includes lectures, practical classes, subject specific tutorials, academic support tutorials, project supervision and workshops. Scheduled sessions may vary slightly depending on the module choices made.

**Independent learning** includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.

**Placement learning:** may include a practice placement, other placement, year abroad.

**Description of any Distinctive Features**

- The Forensic Science programme is accredited by the Forensic Science Society in three component standards- Crime Scene Investigation, Laboratory Analysis and Interpretation, Evaluation and Presentation of Evidence .
- The Forensic Science programme is characterised by a significant practical component. All students have the opportunity to benefit from using a wide range of specialist instrumentation in our recently refurbished laboratories and to carry out mock crime scene

#### Part 4: Student Learning and Student Support

investigations at our specially adapted Crime Scene House. On re-accreditation by the Forensic Science Society in 2011 we were particularly pleased to receive commendations for our lab and crime scene investigation facilities as well as our connections with the law department.

- Students are assessed in a variety of assessment formats, in keeping with the diversity of module learning outcomes. Our external examiners have commented that 'coursework assessments provide interest and challenge across a broad range of learning outcomes' and that 'the use of context based teaching, learning and assessment tasks is motivational as well as relevant to the development of professional knowledge and skills'.
- There is opportunity to apply to study level 2 at Virginia Commonwealth University (VCU).

#### Part 5: Assessment

A: Approved to [University Regulations and Procedures](#)

##### Assessment Strategy

Assessment strategy to enable the learning outcomes to be achieved and demonstrated:

Formative and summative assessments are used throughout the programme to enable students to acquire the necessary knowledge, understanding and skills outlined in the learning outcomes of the programme. Considerable emphasis is given to the assessment of learning undertaken in the practical laboratory and crime scene facilities, as well as critical evaluation, and communication in a range of formats including reports for court and courtroom assessment of the oral presentation of evidence, including cross-examination.

Typically at level one the coursework contributes 60% of the module mark and written exams, including multiple choice questions, contribute 40%. At level 2 the written exams typically contribute 50% with coursework 50% and at level 3 most modules have 60% of the module mark derived from written exams and 40% from a range of demanding coursework.



### Assessment Map

The programme encompasses a range of **assessment methods** including; crime scene examination, reports on laboratory practical exercises, data analysis and interpretation, oral and poster presentations, essays and written exams. These are detailed in the following assessment map:

#### Assessment Map for BSc (Hons) Forensic Science

		Type of Assessment*											
		Unseen Written Exam	Open Book Written Exam	In-class Timed Essay	Practical Exam – crime scene	Practical Skills Assessment	Oral assessment and/or presentation – including courtroom	Report based on practical work – including report for court	Data analysis/interpretation/ problem solving exercise/case study	Critical review/ poster presentation	Essay	Portfolio	Dissertation
Compulsory Modules Level 1	USSJRT-30-1	A (40)										B (60)	
	USSJRU-30-1	A (40)						B (30)				B (30)	
	USSJRV-30-1	A (40)			B (20)		B (20)					B (20)	
	USSJRW-30-1	A (20)	A (20)						B (60)				
Compulsory Modules Level 2	UJUTD5-20-2	A (50)								A (50)			
	USSJ7T-20-2	A (30)				A (30)				B (40)			
	USSJN6-20-2	A (50)		B (12.5)		B (37.5)							
	USSJNG-20-2	A (50)							B (25)	B (25)			
Compulsory Modules Level 3	USSJ73-40-3						A (20)	A (20)					A (60)
	USSJRS-40-3	A (60)			B (10)		B (10)	B (20)					
Optional Modules Level 2	USSJ4C-20-2	A (50)						B (25)	B (25)				
	USSJ4Y-20-2	A (50)						B (25)	B (25)				
	USSJ7P-20-2	A (60)						A (20)			A (20)		
	USSJ8A-20-2	A (50)								B (25)		B (25)	
Optional Modules Level 3	USSJ8G-20-3	A (60)						B (40)					
	USSJJV-20-3	A (60)		B (20)					B (20)				
	USSJJU-20-3	A (60)		B (20)						B (20)			
	USSJJS-20-3	A (60)								B (20)	B (20)		
	USSJH5-20-3	A (60)							B (40)				
	USSJGP-20-3	A (60)						B (20)		B (20)			
	USSJJR-20-3	A (60)							B (40)				
	USSJJQ-20-3	A (60)									B (40)		
	USSJGR-20-3	A (50)										B (50)	

**Part 6: Programme Structure**


This structure diagram demonstrates the student journey from Entry through to Graduation for a typical **full time student**, including: level and credit requirements, interim award requirements, module diet, including compulsory and optional modules

<b>ENTRY</b>	Year 1	Compulsory Modules	Optional Modules	Interim Awards
		<b>USSJRT-30-1</b> Chemistry in Context <b>USSJRU-30-1</b> Human Biological Systems <b>USSJRV-30-1</b> Scientific Investigation of Crime <b>USSJRW-30-1</b> Scientific Skills	None	<b>Certificate of Higher Education</b> 120 credits
<b>ENTRY</b>	Year 2	Compulsory Modules	Optional Modules	Interim Awards
		<b>UJUTD5-20-2</b> Science in Court <b>USSJ7T-20-2</b> Scientific Research Methods <b>USSJN6-20-2</b> Forensic Examination of Materials <b>USSJNG-20-2</b> Drugs and Toxicology	<b>USSJ4C-20-2</b> Molecular Genetics <b>USSJ4Y-20-2</b> Applied Genetics <b>USSJ7P-20-2</b> Instrumental Analytical Science <b>USSJ8A-20-2</b> Medicinal Chemistry	<b>Diploma of Higher Education</b> 240 credits (at least 100 credits at level 2)
Year Out: Students may choose to spend a year on placement if desired. In this case they should complete the Professional Practice in Applied Sciences module.				
<b>ENTRY</b>	Year 3	Compulsory Modules	Optional Modules	Interim Awards
		<b>USSJ73-40-3</b> Project <b>USSJRS-40-3</b> Interpretation Of Forensic Evidence	<b>USSJ8G-20-3</b> Advanced Analytical Science <b>USSJ JV-20-3</b> Applied Genomics <b>USSJ JU-20-3</b> Cancer Biology and Genetics <b>USSJ JS-20-3</b> Gene Expression and Cellular Regulation <b>USSJ H5-20-3</b> Environmental Forensics <b>USSJ GP-20-3</b> Metals & Living Systems <b>USSJ JR-20-3</b> Applied Pharmacology <b>USSJ JQ-20-3</b> Pathophysiology of Brain & Body <b>USSJ GR-20-3</b> Controversial Science and Society <b>USSJ FL-20-3</b> Professional Practice in Applied Sciences	<b>Degree with Honours</b>  360 Credits, at least 100 credits at level 3 and 100 credits at level 2 or above.  <u><b>Other requirements:</b></u> Students must study at least ONE of Advanced Analytical Science, Applied Genomics, Cancer Biology and Genetics, or Gene Expression and Cellular Regulation.
<b>GRADUATION</b>				

**Part time:**

Part-time students can select an appropriate selection of modules, depending on timetable arrangements, for each year of study subject to pre-requisites and advice from the programme manager.

The following structure diagram applies if students elect to study at Virginia Commonwealth University in the second year of the degree programme.

ENTRY		Compulsory Modules	Optional Modules	Interim Awards
	Year 1	<b>USSJRT-30-1</b> Chemistry in Context <b>USSJRU-30-1</b> Human Biological Systems <b>USSJRV-30-1</b> Scientific Investigation of Crime <b>USSJRW-30-1</b> Scientific Skills	None	<b>Certificate of Higher Education</b> 120 credits
	Year 2 at VCU	Genetics BIOL 310 (3 credits)  Genetics Lab BIOZ 310 (2 credits)  Forensic Microscopy FRSC 365 (4 credits)  Forensic Serology FRSC 385 (3 credits) Basic Practice of Statistics STAT 210 (3 credits)  Quantitative Analysis CHEM 309 (3 credits) 1 <sup>st</sup> sem  Forensic Chemistry FRSC 401 (3 credits) 2 <sup>nd</sup> sem	Forensic Anthropology FRSC 310 (3 credits)  Forensic Fire Investigation FRSC 320 (3 credits)  Professional Practices in Forensic Science FRSC 490 (3 credits)  * Forensic Evidence, Law and Criminal Procedure FRSC 375 (3 credits)	<b>Diploma of Higher Education</b> 240 credits (at least 100 credits at level 2)  120 credits at level 2 are awarded by UWE for successful completion of 24 VCU credits.  Other requirements: Students must study ONE optional module  * If Forensic Evidence, Law and Criminal Procedure is not taken at VCU, Science in Court must be studied in the final year at UWE in place of an optional module.  <u><b>Any variation to the above courses studied at VCU may only be undertaken with the prior written agreement of the Programme Leader and VCU Exchange Tutor at UWE after consultation with colleagues at VCU. A minimum of 24 VCU credits must be studied to be equivalent to 120 UWE credits.</b></u>
	Year Out: Students may choose to spend a year on placement if desired. In this case they should complete the Professional Practice in Applied Sciences module.			

	Compulsory Modules	Optional Modules	Interim Awards
Year 3 ↓	<b>USSJ73-40-3</b> Project <b>USSJRS-40-3</b> Interpretation Of Forensic Evidence	<b>USSJ8G-20-3</b> Advanced Analytical Science <b>USSJJV-20-3</b> Applied Genomics <b>USSJJU-20-3</b> Cancer Biology and Genetics <b>USSJJS-20-3</b> Gene Expression and Cellular Regulation <b>USSJH5-20-3</b> Environmental Forensics <b>USSJGP-20-3</b> Metals & Living Systems <b>USSJJR-20-3</b> Applied Pharmacology <b>USSJJQ-20-3</b> Pathophysiology of Brain & Body <b>USSJGR-20-3</b> Controversial Science and Society <b>USSJFL-20-3</b> Professional Practice in Applied Sciences	<b>Degree with Honours</b> 360 Credits, at least 100 credits at level 3 and 100 credits at level 2 or above. Degree – 300 credits, at least 60 credits at level 3.  <u><b>Other requirements:</b></u> Students must study at least ONE of Advanced Analytical Science, Applied Genomics, Cancer Biology and Genetics or Gene Expression and Cellular Regulation.

## GRADUATION

Part 7: Entry Requirements
<p>The University's Standard Entry Requirements apply with the following additions/exceptions*:</p> <p>UCAS Tariff Points for the year of entry (refer to the UWE website) to include GCE A2 level at grade E or above in two science subjects including either Chemistry or a Biological Science (including Human Biology) OR the equivalent subject knowledge from other qualifications contributing to UCAS tariff points.</p>
Part 8: Reference Points and Benchmarks
<p>Description of <b>how</b> the following reference points and benchmarks have been used in the design of the programme:</p> <p><a href="#">QAA UK Quality Code for HE</a>                      National qualification framework                      Subject benchmark statements</p> <p><a href="#">University strategies and policies</a>                      Staff research projects                      Any relevant PSRB requirements                      Any occupational standards</p>

**Part 7: Entry Requirements**

- **Qualification descriptors used in the QAA Framework for Higher Education Qualifications**

The learning outcomes for the programme have been developed with reference to the qualification descriptors used in the QAA Framework for Higher Education Qualifications. In particular, the learning outcomes for modules at level one and level two have been considered to be consistent with the award of a Certificate in Higher Education and a Diploma in Higher Education respectively. Graduates of the award achieving an Honours classification will develop an understanding of a complex body of knowledge related to forensic science. In addition, the graduate will develop skills in analytical techniques, problem-solving skills and communication skills that can be applied to a range of employment opportunities.

- **Subject benchmark statements**

Owing to its interdisciplinary nature, this programme draws on several subject benchmark statements for guidance.

**Forensic Science Benchmarking**

The specific requirements for forensic science have been informed by the knowledge and experience of staff who have been trained, and are professionally active, in this rapidly developing field. Benchmarking for forensic science has however been derived from the accreditation standards of the Forensic Science Society. In addition, elements of the chemistry and bioscience benchmarks are relevant for the analytical aspects of forensic science. The QAA has published a consultation document on benchmarks for Forensic Science and in its current form it aligns closely with this programme specification.

**Chemistry Benchmarking**

As chemistry only forms part of the programme, only some of the Main Aims of chemistry benchmarking are relevant:

- To develop in students the ability to apply their chemical knowledge and skills to the solution of (*theoretical and*) practical problems in chemistry.
- To develop in students, through an education in chemistry, a range of transferable skills, of value in chemical and non-chemical employment.

The focus of this programme is on the practical application of chemistry to forensic science, and hence does not develop the same depth of theoretical understanding (*italicised above*) as a full chemistry course.

Likewise this programme covers a sub-set of the Subject Knowledge expected of a chemistry degree:

- Major aspects of chemical terminology, nomenclature, conventions and units.
- The principles and procedures used in chemical analysis and the characterisation of chemical compounds.
- The principal techniques of structural investigations, including spectroscopy.
- The nature and behaviour of functional groups in organic molecules.

Most of the Abilities and Skills, Chemistry-related Practical Skills and Transferable Skills, identified by the Quality Assurance Agency for Higher Education for chemistry are equivalent to the Subject/Professional/Practical and Transferable Skills that define this programme.

**Part 7: Entry Requirements****Bioscience Benchmarking**

Bioscience benchmarking for Subject Knowledge adopts more inclusive statements implying a broad knowledge across the whole subject, which does not mirror the more focussed and practical approach in this programme. The programme draws on the following statements:

- ...together with specialised in-depth study (often career-related) of some aspects of the discipline or subject area. ....
- understanding of information and data, and their setting within a theoretical framework.....;
- Familiarity with the terminology, nomenclature and classification systems as appropriate;
- Methods of acquiring, interpreting and analysing biological information with a critical understanding of the appropriate contexts .....
- Knowledge of a range of practical and presentational techniques and methodologies relevant to the particular discipline, including data analysis and the use of statistics.

The Generic, Intellectual, and Practical Skills, that are not strongly subject-dependent, also map well to the Intellectual Skills and Subject/Professional/Practical Skills of this programme, e.g.

- The capacity to give a clear and accurate account of a subject, marshal arguments in a mature way and engage in debate and dialogue both with specialists and non-specialists;
- The ability to employ a variety of methods of study in investigating, recording and analysing material.

The Bioscience benchmarking of Transferable Skills mirrors the main issues identified in the other subject areas.

- **Requirements of Professional Bodies**

The Forensic Science Society is the professional body which operates an accreditation scheme for university courses in forensic science, and this course has been accredited (UWE being one of the first four universities to have been recognised in this way) in all three main component standards – (1) Crime Scene Investigation, (2) Laboratory Analysis and (3) Interpretation, Evaluation, and Presentation of Evidence. Students may join The Forensic Science Society as student members. Graduates who have undertaken a Chemistry based project and studied chemical science modules at levels 2 and 3 may apply to become Associate Members of the Royal Society of Chemistry.

- **University's Mission Statement**

Students with a science background will have an educational opportunity to establish a career foundation in forensic science, together with the development of an analytical approach to science that will further enhance their career and further study opportunities. The programme builds on subjects in UWE which have a high reputation for teaching excellence, and makes extensive use of advanced learning strategies which build on the successes of consultancy and research.

- **University's teaching and learning policies**

In line with the University's teaching and learning policies, this programme takes a student centred approach to learning by allowing students to take control of aspects of their learning and providing a learning environment that stimulates active participation and engagement in the learning process. The programme seeks to create an environment that

## Part 7: Entry Requirements

will stimulate students to take responsibility for aspects of their learning, while lecturers take responsibility for facilitating that learning. Module learning outcomes have been designed to ensure that students meet the overall programme learning outcomes on completion of the programme. In addition, the FACS (Forensic, Chemical and Analytical Science) section of the Faculty has been active in developing and strengthening the key skills aspects of the programmes.

A variety of assessment methods is incorporated within the programme to cater for a diversity of student strengths and abilities. Although this document focuses on summative assessment, the course team recognise the importance of both summative and formative assessment activity as an integral part of the learning and teaching process. All assessments will comply with the University Assessment Policy and Academic Regulations.

- **Research carried out by staff**

Research and consultancy is undertaken in the following areas of particular relevance to forensic science:

- chemical sensors for drugs and arson accelerants
- improvements of MSMS methods used in the detection of illicit drugs
- forensic entomology
- factors affecting the efficacy of fingerprint development methods
- elemental composition of soil

Some projects are carried out with regional forensic science companies or police forces.

Research specifically in forensic science topics is also supported by a wide range of other research interests across numerous biological and chemical fields.

Using the world-class research facilities of the Centre for Research in Biosciences, the bioscience research is excellent and of international standard. Current research projects include

- Genomics research into molecular diagnostic methods for non-invasive prenatal diagnosis
- Neuroscience: the function of the blood-brain barrier
- In vitro toxicology
- Cancer and ageing
- Red cell membrane molecular biology and red cell antigen expression
- Magnetic detection systems for biological interactions.

What methods have been used in the development of this programme to evaluate and improve the quality and standards of learning? This could include consideration of stakeholder feedback from, for example current students, graduates and employers.

The department has excellent links with the forensic science practitioners in the area. The Avon and Somerset Constabulary are very supportive of the forensic science teaching at UWE, and collaborates for research projects. The Chief Constable launched the BSc (Hons) Forensic Science in 2001 and commented on the value such a degree would have for recruits to his force. Local Home Office Forensic Pathologists have also been involved with the faculty for many years - one is involved in teaching the level 3 compulsory forensic science module.

A local independent laboratory has strong research links with the Forensic Science team at UWE.

### **Part 7: Entry Requirements**

There is a Strategic Employers Group for the Forensic Analytical and Chemical Sciences subject group and local employers discuss with the programme team how to ensure that the curriculum is current and appropriate. Current students and graduates also provide feedback and suggestions for improving the quality and standards of learning.

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules can be found in module specifications, available on the [University's website](#).



Appendix 1

SPECIFICATION FOR ADDITIONAL AWARD TITLE

<b>Title of Primary Award</b>	BSc (Hons) Forensic Science
<b>Highest Award Title of additional target</b>	BSc (Hons) Forensic Science (Biology)
<b>Interim Award Titles for additional target</b>	Cert.HE in Forensic Science Dip.HE in Forensic Science (Biology) BSc Forensic Science (Biology)
<b>Codes</b>	<b>UCAS:</b> <b>ISIS2:</b>
	<b>JACS:</b> <b>HESA:</b>
<b>Relevant QAA Subject Benchmark Statements</b>	Biosciences, Forensic Science – currently in draft form, Chemistry
<b>CAP Approval Date</b>	10/10/2012
<b>Valid until Date</b>	01/01/2018
<b>Version</b>	

**Part 3a: Learning Outcomes of the Programme**

The target route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas, with a clear emphasis at levels 2 and 3 on the biological sciences:

<b>Learning Outcomes:</b>	Module No: USSJRT-30-1	Module No: USSJRV-30-1	Module No: USSJRU-30-1	Module No: USSJRW-30-1	Module No: USSJN6-20-2	Module No: USSJ7T-20-2	Module No: USSJ4Y-20-2	Module No: USSJ4C-20-2	Module No: USSJNG-20-2
<b>A) Knowledge and understanding of:</b>									
The scope and nature of scientific evidence, its value to society and the roles and responsibilities of forensic scientists.		X			X	X			X
The techniques used in crime scene investigation.		X			X				
The theory and application of the principal laboratory methods used routinely in forensic science.		X		X	X	X			X
Principles and procedures relating to the interpretation, evaluation and presentation of evidence.		X			X	X			X
Wider aspects of science associated with forensic science and studies.	X	X	X	X	X	X	X	X	X
Methodology of scientific inquiry and research.		X		X		X		X	
The range of techniques used for the extraction and analysis of DNA.		X						X	
The principles and procedures used in chemical analysis and the characterisation of chemical compounds.	X	X		X	X				X
The facts, principles, practices and applications of organic, inorganic and physical chemistry.	X	X		X	X				X
The explanation of biological phenomena at a variety of levels from biological molecules to whole organisms.			X				X	X	

**Part 3a: Learning Outcomes of the Programme**

Gene expression, with detailed knowledge of specific examples.			X				X	X	
Human physiology, pathology, disease and pharmacology.			X				X		X
<b>(B) Intellectual Skills</b>									
Select appropriate strategies, techniques and procedures for the examination of a scene of crime.		X			X				
Select appropriate strategies, techniques and procedures for the examination of forensic evidence.		X			X				X
Interpret and evaluate evidence and report on it appropriately.		X			X	X			
Recognise and apply subject-specific theories, paradigms, concepts or principles.	X	X	X	X	X	X	X	X	X
Critically analyse, synthesise and summarise information, including published research or reports, and use several lines of information to form and test hypotheses.						X			
Recognise the moral and ethical issues of investigations and appreciating the need for ethical standards and professional codes of conduct.							X	X	
Recognise and implement good measurement science and practice.		X		X	X	X			
<b>(C) Subject/Professional/Practical Skills</b>									
Plan and safely execute scientific investigations, including a programme of independent research.									
Obtain, record, collate and critically analyse data using appropriate techniques in the field and/or laboratory.	X	X	X		X				
Handle, analyse and report forensic samples with awareness of validity and contamination issues.		X			X				
Communicate results and their interpretation clearly and unambiguously.	X	X	X	X	X	X	X	X	
Synthesise a variety of appropriate skills to meet the requirements of forensic analysis.		X			X				
Adhere to safe working practices.	X	X	X	X	X		X	X	X
Comply with ethical, legal and quality assurance principles such as the chain of custody.		X			X		X	X	
Conduct standard laboratory procedures for synthetic and analytical work and competently operate standard equipment.	X	X		X	X		X	X	
<b>(D) Transferable skills and other attributes</b>									
Evaluate their own academic performance and plan work accordingly.									
Study independently in a variety of learning styles.	X	X	X	X	X	X	X	X	X
Work effectively as a team member.		X			X	X		X	
Practise good time management, prioritise workloads and recognise deadlines.								X	
Communicate effectively in a variety of media and contexts; in particular, express the interpretation of results in a manner comprehensible to the intended recipient and write comprehensive, comprehensible, rational and impartial reports.			X					X	
Use mathematical and statistical methods effectively in problem solving.				X		X			
Use a variety of IT skills for data processing, communicating and supporting scientific research.	X	X	X	X	X	X	X	X	X

**Continued:**

**Part 3a: Learning Outcomes of the Programme**

<b>Learning Outcomes:</b>	Module No: UJUTD5-20-2	Module No: USSJ73-40-3	Module No: USSJRS-40-3	Module No: USSJJV-20-3	Module No: USSJUU-20-3	Module No: USSJJS-20-3	Module No: USSJQJ-20-3	Module No: USSJJR-20-3	Module No: USSJGP-20-3	Module No: USSJGR-20-3	Module No: USSJH5-20-3
<b>A) Knowledge and understanding of:</b>											
The scope and nature of scientific evidence, its value to society and the roles and responsibilities of forensic scientists.	X		X							X	X
The techniques used in crime scene investigation.			X								X
The theory and application of the principal laboratory methods used routinely in forensic science.			X								X
Principles and procedures relating to the interpretation, evaluation and presentation of evidence.	X		X								X
Wider aspects of science associated with forensic science and studies.		X	X	X	X	X	X	X	X	X	X
Methodology of scientific inquiry and research.		X	X	X		X			X	X	
The range of techniques used for the extraction and analysis of DNA.			X								
The principles and procedures used in chemical analysis and the characterisation of chemical compounds.			X						X		X
The facts, principles, practices and applications of organic, inorganic and physical chemistry <sup>c</sup> .			X						X		X
The explanation of biological phenomena at a variety of levels from biological molecules to whole organisms.				X	X	X		X	X		
Gene expression, with detailed knowledge of specific examples.				X	X	X					
Human physiology, pathology, disease and pharmacology.			X		X		X	X	X		
<b>(B) Intellectual Skills</b>											
Select appropriate strategies, techniques and procedures for the examination of a scene of crime.			X								X
Select appropriate strategies, techniques and procedures for the examination of forensic evidence.			X								X
Interpret and evaluate evidence and report on it appropriately.	X		X								X
Recognise and apply subject-specific theories, paradigms, concepts or principles.	X	X	X	X	X	X	X	X	X	X	X
Critically analyse, synthesise and summarise information, including published research or reports, and use several lines of information to form and test hypotheses.		X			X					X	
Recognise the moral and ethical issues of investigations and appreciating the need for ethical standards and professional codes of conduct.	X	X	X							X	
Recognise and implement good measurement science and practice.		X			X						X

**Part 3a: Learning Outcomes of the Programme**

<b>(C) Subject/Professional/Practical Skills</b>											
Plan and safely execute scientific investigations, including a programme of independent research.		X	X		X						
Obtain, record, collate and critically analyse data using appropriate techniques in the field and/or laboratory.		X	X	X					X		X
Handle, analyse and report forensic samples with awareness of validity and contamination issues.				X							X
Communicate results and their interpretation clearly and unambiguously.	X	X	X	X				X	X	X	X
Synthesise a variety of appropriate skills to meet the requirements of forensic analysis.			X								
Adhere to safe working practices.		X	X	X	X		X		X	X	X
Comply with ethical, legal and quality assurance principles such as the chain of custody.	X	X	X								
Conduct standard laboratory procedures for synthetic and analytical work and competently operate standard equipment.			X	X					X		X
<b>(D) Transferable skills and other attributes</b>											
Evaluate their own academic performance and plan work accordingly.		X	X								
Study independently in a variety of learning styles.	X	X	X	X	X	X	X	X	X	X	X
Work effectively as a team member.			X		X						
Practise good time management, prioritise workloads and recognise deadlines.		X	X								
Communicate effectively in a variety of media and contexts; in particular, express the interpretation of results in a manner comprehensible to the intended recipient and write comprehensive, comprehensible, rational and impartial reports.	X	X	X		X					X	X
Use mathematical and statistical methods effectively in problem solving.		X	X								
Use a variety of IT skills for data processing, communicating and supporting scientific research.	X	X	X	X	X	X	X	X	X	X	X

**Part 5a: Assessment**

**Assessment Strategy**

Assessment strategy to enable the learning outcomes to be achieved and demonstrated:

Formative and summative assessments are used throughout the programme to enable students to acquire the necessary knowledge, understanding and skills outlined in the learning outcomes of the programme. Considerable emphasis is given to the assessment of learning undertaken in the practical laboratory and crime scene facilities, as well as critical evaluation, and communication in a range of formats including reports for court and courtroom assessment of the oral presentation of evidence, including cross-examination.

Typically at level one the coursework contributes 60% of the module mark and written exams, including multiple choice questions, contribute 40%. At level 2 the written exams typically contribute 50% with coursework 50% and at level 3 most modules have 60% of the module mark derived from written exams and 40% from a range of demanding coursework.

**Part 5a: Assessment**

**Assessment Map**

The programme encompasses a range of **assessment methods** including; crime scene examination, reports on laboratory practical exercises, data analysis and interpretation, oral and poster presentations, essays and written exams. These are detailed in the following assessment map:

**Assessment Map for BSc (Hons) Forensic Science (Biology)**

		Type of Assessment*											
		Unseen Written Exam	Open Book Written Exam	In-class Timed Essay	Practical Exam – crime scene	Practical Skills Assessment	Oral assessment and/or presentation – including courtroom	Report based on practical work – including report for court	Data analysis/Interpretation/ problem solving exercise/case study	Critical review/ poster presentation	Essay	Portfolio	Dissertation
Compulsory Modules Level 1	USSJRT-30-1	A (40)										B (60)	
	USSJRU-30-1	A (40)						B (30)				B (30)	
	USSJRV-30-1	A (40)			B (20)		B (20)					B (20)	
	USSJRW-30-1	A (20)	A (20)						B (60)				
Compulsory Modules Level 2	UJUTD5-20-2	A (50)								A (50)			
	USSJ7T-20-2	A (30)				A (30)			B (40)				
	USSJN6-20-2	A (50)			B (12.5)		B (37.5)						
	USSJNG-20-2	A (50)							B (25)	B (25)			
	USSJ4C-20-2	A (50)						B (25)	B (25)				
	USSJ4Y-20-2	A (50)						B (25)	B (25)				
Compulsory Modules Level 3	USSJ73-40-3						A (20)	A (20)					A (60)
	USSJRS-40-3	A (60)			B (10)		B (10)	B (20)					
Optional Modules Level	USSJJV-20-3	A (60)		B (20)						B (20)			
	USSJJU-20-3	A (60)		B (20)							B (20)		
	USSJJS-20-3	A (60)								B (20)	B (20)		
	USSJH5-20-3	A (60)							B (40)				
	USSJGP-20-3	A (60)						B (20)		B (20)			
	USSJJR-20-3	A (60)						B (40)					
	USSJJQ-20-3	A (60)								B (40)			
	USSJGR-20-3	A (50)									B (50)		

**Part 6a: Programme Structure**

This structure diagram demonstrates the student journey from Entry through to Graduation for a typical **full time student**, including: level and credit requirements, interim award requirements, module diet, including compulsory and optional modules

ENTRY	Year 1	Compulsory Modules	Optional Modules	Interim Awards
		<b>USSJRT-30-1</b> Chemistry in Context <b>USSJRU-30-1</b> Human Biological Systems <b>USSJRV-30-1</b> Scientific Investigation of Crime <b>USSJRW-30-1</b> Scientific Skills	None	<b>Certificate of Higher Education</b> 120 credits
	Year 2	Compulsory Modules	Optional Modules	Interim Awards
		<b>UJUTD5-20-2</b> Science in Court <b>USSJ7T-20-2</b> Scientific Research Methods <b>USSJN6-20-2</b> Forensic Examination of Materials <b>USSJNG-20-2</b> Drugs and Toxicology <b>USSJ4C-20-2</b> Molecular Genetics <b>USSJ4Y-20-2</b> Applied Genetics		<b>Diploma of Higher Education</b> 240 credits (at least 100 credits at level 2)
Year Out: Students may choose to spend a year on placement if desired. In this case they should complete the Professional Practice in Applied Sciences module.				
Year 3	Compulsory Modules	Optional Modules	Interim Awards	
	<b>USSJ73-40-3</b> Project <b>USSJRS-40-3</b> Interpretation Of Forensic Evidence	<b>USSJJV-20-3</b> Applied Genomics <b>USSJJU-20-3</b> Cancer Biology and Genetics <b>USSJJS-20-3</b> Gene Expression and Cellular Regulation <b>USSJJR-20-3</b> Applied Pharmacology <b>USSJJQ-20-3</b> Pathophysiology of Brain & Body <b>USSJGR-20-3</b> Controversial Science and Society <b>USSJH5-20-3</b> Environmental Forensics <b>USSJGP-20-3</b> Metals & Living Systems <b>USSJFL-20-3</b> Professional Practice in Applied Sciences	<b>Degree with Honours</b>  360 Credits, at least 100 credits at level 3 and 100 credits at level 2 or above.  <u><b>Other requirements:</b></u> Students must study at least ONE Applied Genomics, Cancer Biology and Genetics, or Gene Expression and Cellular Regulation.	
GRADUATION				

**Part time:**

Part-time students can select an appropriate selection of modules, depending on timetable arrangements, for each year of study subject to pre-requisites and advice from the programme manager.

## Appendix 2

### SPECIFICATION FOR ADDITIONAL AWARD TITLE

<b>(Title of Primary Award</b>	BSc (Hons) Forensic Science		
<b>Highest Award Title of additional target</b>	BSc (Hons) Forensic Science (Chemistry)		
<b>Interim Award Titles for additional target</b>	Cert.HE in Forensic Science Dip.HE in Forensic Science (Chemistry) BSc Forensic Science (Chemistry)		
<b>Codes</b>	<b>UCAS:</b>	<b>JACS:</b>	
	<b>ISIS2:</b>	<b>HESA:</b>	
<b>Relevant QAA Subject Benchmark Statements</b>	Chemistry, Forensic Science- currently in draft form, Biology		
<b>CAP Approval Date</b>	10/10/2012		
<b>Valid until Date</b>	01/01/2018		
<b>Version</b>			

#### Part 3a: Learning Outcomes of the Programme

The target route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas, with a clear emphasis at levels 2 and 3 on the chemical sciences:

<i>Learning Outcomes:</i>	Module No: USSJRT-30-1	Module No: USSJRV-30-1	Module No: USSJRU-30-1	Module No: USSJRW-30-1	Module No: USSJNG-20-2	Module No: USSJ7P-20-2	Module No: USSJ7T-20-2	Module No: USSJ8A-20-2	Module No: USSJNG-20-2
<b>A) Knowledge and understanding of:</b>									
The scope and nature of scientific evidence, its value to society and the roles and responsibilities of forensic scientists.		X			X		X		X
The techniques used in crime scene investigation.		X			X				
The theory and application of the principal laboratory methods used routinely in forensic science.		X		X	X	X	X		X
Principles and procedures relating to the interpretation, evaluation and presentation of evidence.		X			X	X	X		X
Wider aspects of science associated with forensic science and studies.	X	X	X	X	X	X	X	X	X
Methodology of scientific inquiry and research.		X		X		X	X		
The range of techniques used for the extraction and analysis of DNA.		X							
The principles and procedures used in chemical analysis and the characterisation of chemical compounds.	X	X		X	X	X		X	X
The facts, principles, practices and applications of organic, inorganic and physical chemistry.	X	X		X	X	X		X	X
The explanation of biological phenomena at a variety of levels from biological molecules to whole organisms.			X						

**Part 3a: Learning Outcomes of the Programme**

Gene expression, with detailed knowledge of specific examples.			X						
Human physiology, pathology, disease and pharmacology.			X					X	X
<b>(B) Intellectual Skills</b>									
Select appropriate strategies, techniques and procedures for the examination of a scene of crime.		X			X				
Select appropriate strategies, techniques and procedures for the examination of forensic evidence.		X			X	X			X
Interpret and evaluate evidence and report on it appropriately.		X			X		X		
Recognise and apply subject-specific theories, paradigms, concepts or principles.	X	X	X	X	X	X	X	X	X
Critically analyse, synthesise and summarise information, including published research or reports, and use several lines of information to form and test hypotheses.							X		
Recognise the moral and ethical issues of investigations and appreciating the need for ethical standards and professional codes of conduct.									
Recognise and implement good measurement science and practice.		X		X	X	X	X		
<b>(C) Subject/Professional/Practical Skills</b>									
Plan and safely execute scientific investigations, including a programme of independent research.									
Obtain, record, collate and critically analyse data using appropriate techniques in the field and/or laboratory.	X	X	X		X	X		X	
Handle, analyse and report forensic samples with awareness of validity and contamination issues.		X			X				
Communicate results and their interpretation clearly and unambiguously.	X	X	X	X	X	X	X		
Synthesise a variety of appropriate skills to meet the requirements of forensic analysis.		X			X	X			
Adhere to safe working practices.	X	X	X	X	X	X		X	X
Comply with ethical, legal and quality assurance principles such as the chain of custody.		X			X				
Conduct standard laboratory procedures for synthetic and analytical work and competently operate standard equipment.	X	X		X	X	X		X	
<b>(D) Transferable skills and other attributes</b>									
Evaluate their own academic performance and plan work accordingly.									
Study independently in a variety of learning styles.	X	X	X	X	X	X	X	X	X
Work effectively as a team member.		X			X		X		
Practise good time management, prioritise workloads and recognise deadlines.									
Communicate effectively in a variety of media and contexts; in particular, express the interpretation of results in a manner comprehensible to the intended recipient and write comprehensive, comprehensible, rational and impartial reports.			X			X			
Use mathematical and statistical methods effectively in problem solving.				X			X		
Use a variety of IT skills for data processing, communicating and supporting scientific research.	X	X	X	X	X	X	X	X	X

**Continued:**



## Part 3a: Learning Outcomes of the Programme

<b>Learning Outcomes:</b>		Module No: UJUTD5-20-2	Module No: USSJ73-40-3	Module No: USSJRS-40-3	Module No: USSJ8G-20-3	Module No: USSJGP-20-3	Module No: USSJGR-20-3	Module No: USSJH5-20-3
<b>A) Knowledge and understanding of:</b>								
The scope and nature of scientific evidence, its value to society and the roles and responsibilities of forensic scientists.		X		X	X		X	X
The techniques used in crime scene investigation.				X				X
The theory and application of the principal laboratory methods used routinely in forensic science.				X	X			X
Principles and procedures relating to the interpretation, evaluation and presentation of evidence.		X		X	X			X
Wider aspects of science associated with forensic science and studies.			X	X	X	X	X	X
Methodology of scientific inquiry and research.			X	X		X	X	
The range of techniques used for the extraction and analysis of DNA.				X				
The principles and procedures used in chemical analysis and the characterisation of chemical compounds.				X	X	X		X
The facts, principles, practices and applications of organic, inorganic and physical chemistry.				X	X	X		X
The explanation of biological phenomena at a variety of levels from biological molecules to whole organisms.						X		
Gene expression, with detailed knowledge of specific examples.								
Human physiology, pathology, disease and pharmacology.				X		X		
<b>(B) Intellectual Skills</b>								
Select appropriate strategies, techniques and procedures for the examination of a scene of crime.				X				X
Select appropriate strategies, techniques and procedures for the examination of forensic evidence.				X	X			X
Interpret and evaluate evidence and report on it appropriately.		X		X				X
Recognise and apply subject-specific theories, paradigms, concepts or principles.		X	X	X	X	X	X	X
Critically analyse, synthesise and summarise information, including published research or reports, and use several lines of information to form and test hypotheses.			X				X	
Recognise the moral and ethical issues of investigations and appreciating the need for ethical standards and professional codes of conduct.		X	X	X			X	
Recognise and implement good measurement science and practice.			X		X			X

**Part 3a: Learning Outcomes of the Programme**

<b>(C) Subject/Professional/Practical Skills</b>							
Plan and safely execute scientific investigations, including a programme of independent research.		X	X				
Obtain, record, collate and critically analyse data using appropriate techniques in the field and/or laboratory.		X	X	X	X		X
Handle, analyse and report forensic samples with awareness of validity and contamination issues.			X				X
Communicate results and their interpretation clearly and unambiguously.	X	X	X	X	X	X	X
Synthesise a variety of appropriate skills to meet the requirements of forensic analysis.			X				
Adhere to safe working practices.		X	X	X	X	X	X
Comply with ethical, legal and quality assurance principles such as the chain of custody.	X	X	X				
Conduct standard laboratory procedures for synthetic and analytical work and competently operate standard equipment.			X	X	X		X
<b>(D) Transferable skills and other attributes</b>							
Evaluate their own academic performance and plan work accordingly.		X	X				
Study independently in a variety of learning styles.	X	X	X	X	X	X	X
Work effectively as a team member.			X				
Practise good time management, prioritise workloads and recognise deadlines.		X	X				
Communicate effectively in a variety of media and contexts; in particular, express the interpretation of results in a manner comprehensible to the intended recipient and write comprehensive, comprehensible, rational and impartial reports.	X	X	X	X		X	X
Use mathematical and statistical methods effectively in problem solving.		X	X				
Use a variety of IT skills for data processing, communicating and supporting scientific research.	X	X	X	X	X	X	X

**Part 5a: Assessment**

**Assessment Strategy**

Assessment strategy to enable the learning outcomes to be achieved and demonstrated:

Formative and summative assessments are used throughout the programme to enable students to acquire the necessary knowledge, understanding and skills outlined in the learning outcomes of the programme. Considerable emphasis is given to the assessment of learning undertaken in the practical laboratory and crime scene facilities, as well as critical evaluation, and communication in a range of formats including reports for court and courtroom assessment of the oral presentation of evidence, including cross-examination.

Typically at level one the coursework contributes 60% of the module mark and written exams, including multiple choice questions, contribute 40%. At level 2 the written exams typically contribute 50% with coursework 50% and at level 3 most modules have 60% of the module mark derived from written exams and 40% from a range of demanding coursework.

**Part 5a: Assessment**
**Assessment Map**

The programme encompasses a range of **assessment methods** including; crime scene examination, reports on laboratory practical exercises, data analysis and interpretation, oral and poster presentations, essays and written exams. These are detailed in the following assessment map:

**Assessment Map for BSc (Hons) Forensic Science (Chemistry)**

		Type of Assessment*											
		Unseen Written Exam	Open Book Written Exam	In-class Timed Essay	Practical Exam – crime scene	Practical Skills Assessment	Oral assessment and/or presentation – including courtroom	Report based on practical work – including report for court	Data analysis/Interpretation/ problem solving exercise/case study	Critical review/ poster presentation	Essay	Portfolio	Dissertation
Compulsory Modules Level 1	USSJRT-30-1	A (40)										B (60)	
	USSJRU-30-1	A (40)										B (30)	
	USSJRV-30-1	A (40)			B (20)		B (20)					B (20)	
	USSJRW-30-1	A (20)	A (20)						B (60)				
Compulsory Modules Level 2	UJUTD5-20-2	A (50)								A (50)			
	USSJ7T-20-2	A (30)				A (30)			B (40)				
	USSJN6-20-2	A (50)		B (12.5)		B (37.5)							
	USSJNG-20-2	A (50)							B (25)	B (25)			
	USSJ7P-20-2	A (60)						A (20)			A (20)		
	USSJ8A-20-2	A (50)								B (25)		B (25)	
Compulsory Modules Level 3	USSJ73-40-3							A (20)	A (20)				A (60)
	USSJRS-40-3	A (60)			B (10)		B (10)	B (20)					
	USSJ8G-20-3	A (60)						B (40)					
Optional Modules Level 3	USSJH5-20-3	A (60)							B (40)				
	USSJGP-20-3	A (60)						B (20)		B (20)			
	USSJGR-20-3	A (50)										B (50)	

**Part 6a: Programme Structure**

This structure diagram demonstrates the student journey from Entry through to Graduation for a typical **full time student**, including: level and credit requirements, interim award requirements, module diet, including compulsory and optional modules

ENTRY	Year 1	Compulsory Modules	Optional Modules	Interim Awards
		<b>USSJRT-30-1</b> Chemistry in Context <b>USSJRU-30-1</b> Human Biological Systems <b>USSJRV-30-1</b> Scientific Investigation of Crime <b>USSJRW-30-1</b> Scientific Skills	None	<b>Certificate of Higher Education</b>  120 credits
	Year 2	Compulsory Modules	Optional Modules	Interim Awards
		<b>UJUTD5-20-2</b> Science in Court <b>USSJ7T-20-2</b> Scientific Research Methods <b>USSJN6-20-2</b> Forensic Examination of Materials <b>USSJ7P-20-2</b> Instrumental Analytical Science <b>USSJNG-20-2</b> Drugs and Toxicology <b>USSJ8A-20-2</b> Medicinal Chemistry		<b>Diploma of Higher Education</b>  240 credits (at least 100 credits at level 2)
Year Out: Students may choose to spend a year on placement if desired. In this case they should complete the Professional Practice in Applied Sciences module.				
Year 3	Compulsory Modules	Optional Modules	Interim Awards	
	<b>USSJ73-40-3</b> Project <b>USSJRS-40-3</b> Interpretation Of Forensic Evidence <b>USSJ8G-20-3</b> Advanced Analytical Science	<b>USSJH5-20-3</b> Environmental Forensics <b>USSJGP-20-3</b> Metals & Living Systems <b>USSJFL-20-3</b> Professional Practice in Applied Sciences	<b>Degree with Honours</b> 360 Credits, at least 100 credits at level 3 and 100 credits at level 2 or above.  Degree – 300 credits, at least 60 credits at level 3.	
<b>GRADUATION</b>				

**Part time:**

Part-time students can select an appropriate selection of modules, depending on timetable arrangements, for each year of study subject to pre-requisites and advice from the programme manager.