

PROGRAMME SPECIFICATION

Section 1: Basic Data

Awarding institution/body	University of the West of England, Bristol
Teaching institution	University of the West of England, Bristol
Delivery Location(s)	University of the West of England, Bristol, Frenchay campus
Faculty responsible for programme	Health and Life sciences
Modular Scheme title	
Professional Statutory or Regulatory Body Links (type and dates)	Accreditation by the Chartered Society of Forensic Sciences
Highest award title	MSc Advanced Forensic Analysis
Default award title	
Interim award titles	PGCert Advanced Forensic Analysis PGDip Advanced Forensic Analysis
UWE progression route	
Mode(s) of delivery	Full time
Codes	
UCAS code F41A1	JACS code F410
ISIS code F41A1	HESA code
Relevant QAA subject benchmark statements	Chemistry, Biosciences.
valid until	2023
Valid from (insert date if appropriate)	September 2017
Original Validation Date: November 2011	
Latest Committee Approval: HAS CAP	Date: 01 February 2017
Version Code 2	

Section 2: Educational aims of the programme

Context

- The MSc Advanced Forensic Analysis is a one year full time postgraduate programme designed to provide students with an advanced understanding of the main areas of forensic science. There has been a rapid growth in UK post-graduate provision in the forensics subject area in recent years, which has reflected an increasing demand from undergraduates who increasingly need a post-graduate qualification to boost their employability. Most of these are very broad courses entitled 'Forensic Science', which act as conversion courses for non-forensic science graduates, or specialise in a particular area such as 'Forensic Archaeology' and "Forensic Toxicology". However, this programme offers students with an existing qualification in forensic science, the opportunity to build on the knowledge gained at undergraduate level and acquire an advanced knowledge of all main aspects of forensic science. This course offers modules in all three key areas of forensic science i.e. biology, chemistry and crime scene science and also a module covering more advanced aspects of research and statistics as well as conducting a research project, either based at the university or on placement with one of the forensic providers.

General Aims:

This programme is designed to offer an advanced, flexible professional educational programme in the main areas of forensic science. The design of the programme enables the student to:

- study more advanced aspects of forensic science from scenes of crime issues, through lab analysis to court room presentations;
- pursue an in-depth knowledge of 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;
- develop advanced knowledge, understanding and skills to produce new ideas, concepts and solutions;
- develop research skills; specifically advanced analysis, collection and interpretation of data and production of publishable standard of work.
- apply their learning in the workplace or to further education;
- acquire and apply a wide range of appropriate professional skills;
- pursue advanced level learning for career development in forensic science;
- develop autonomy in the learning process and to become effective self directed learners;
- achieve a high level of presentation and defence of own work.

Specific aims:

The programme specifically aims to provide the educational and resource environment which will enable students with a background in forensic science at degree level or equivalent to :-

- acquire an in depth and advanced knowledge of the current concepts and approaches to all main areas of forensic science;
- develop the ability to critically assess the methods and concepts at an advanced level in relation to all main areas of forensic science;

- develop practical skills in all main areas of forensic science and study an in depth area of choice in forensic science through a research project;
- equip students with transferable professional and practical skills appropriate to a career in forensic science and allied disciplines.

The programme team aim to create a friendly and supportive atmosphere that will enable individual students to use the graduate learning experience at UWE and the Graduate School in the Faculty of Health and Life Sciences, to provide a postgraduate foundation for lifelong learning, continuing professional development and future careers.

The programme team aim to provide a curriculum that is enhanced by a balance of experience from research, consultancy and professional practice.

Section 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: ...

A Knowledge and understanding

Learning outcomes	Teaching, Learning and Assessment Strategies
<p>A Knowledge and understanding of:</p> <ol style="list-style-type: none"> 1. The scope and nature of forensic evidence from a variety of complex scenes and sources. 2. The current concepts and developments within the forensic field :- <ol style="list-style-type: none"> i) innovative techniques used in crime scene investigation. ii) specialist equipment and principal laboratory methods routinely used in forensic science. ii) evaluation and interpretation of complex evidence types. 3. The role of research in furthering knowledge and understanding 4. Methods of acquiring, interpreting and analysing information and data with a critical understanding of the appropriate contexts for their use in practice; 5. The use of research and practice-based inquiry to create, interpret 	<p>Teaching/learning methods and strategies:</p> <p><i>Acquisition of 1-2 is through the three main forensic modules (Forensic Biology and Genetics, Forensic analysis and Toxicology and Advanced Crime Scene Science)</i></p> <p><i>Learning outcomes 3-5 is addressed through all modules especially the research project.</i></p> <p><i>There will be a range of teaching and learning strategies including lectures and discussion, team working, case studies and problem based learning. The use of a crime scene house will be employed to give students experience of crime scene examination and laboratory practicals will form a key part of student learning. Research and practice-based enquiry is particularly addressed in the Research Methods and the Project Module.</i></p>

and apply knowledge in the context of forensic science and other scientific disciplines.

Additional support is provided through tutorial and workshops as well as a Virtual Learning Environment to enable access to on-line learning and support, both at UWE, and off-campus. Other e-learning resources include, 'forensicnetbase', and the journals and abstracts on 'science-direct'.

Throughout, the learner is encouraged to undertake independent reading both to supplement and consolidate what is being taught/ learnt and to broaden their individual knowledge and understanding of the topics addressed.

To increase the effectiveness of their learning, students may approach academics directly for advice and assistance, but also have access to dedicated student advisers, who are available full-time to give general advice, assist with access to the facilities and help with personal difficulties and special needs.

Assessment:

*Knowledge and understanding is assessed using a variety of methods, including:
formal examinations, tests and assignments,
essays and different styles of reports,
problem solving exercises and data analysis, crime scene examinations, oral presentations, case studies and research assessments*

B Intellectual Skills

<p>B Intellectual Skills</p> <p>A successful candidate will be able to:</p> <ol style="list-style-type: none">1. critically evaluate and select appropriate strategies for crime scene examination;2. critically evaluate and select appropriate strategies/ techniques for the examination of many types of forensic evidence;3. interpret and evaluate complex scenes/ evidence and report on them appropriately;4. critically assess, present and discuss primary reference source material;.5. apply relevant advanced numerical skills (including statistical analysis where appropriate) to data sets;6. develop strategies for updating, maintaining and enhancing their knowledge of forensic science;7. analysis of data gained though practical research.8. ability to critically evaluate current research and advanced scholarship.9. learning through reflection on practice and experience.10. ability to construct reasoned arguments to support their position on the ethical and social impact of advances in forensic science.	<p>Teaching/learning methods and strategies</p> <p><i>Intellectual skills are developed through discussion, team exercises, case studies critical analysis and reflection on the research. Throughout the programme students are encouraged to undertake independent inquiry to develop and to broaden their individual knowledge and intellectual skills. Specific training in research skills is provided within the practical and project modules.</i></p> <p>Assessment</p> <p><i>A variety of assessment methods is employed (see section A) Some/all test a learner's ability to demonstrate skills 1-10 through assessed coursework and project work, including verbal presentations, posters and written examinations.</i></p>
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C Subject, Professional and Practical Skills

<p>C Subject/Professional/Practical Skills <i>A successful candidate will be able to: ...</i></p> <ol style="list-style-type: none">1. demonstrate a clear and in-depth understanding of a wide range of forensic techniques;2. show familiarity with the operation and uses of advanced equipment;3. critically analyse and present experimental data;4. demonstrate an in-depth understanding of research processes;6. demonstrate an advanced understanding of a wide range of practical techniques and skills relevant to current forensic science practices;7. demonstrate skills in both oral and written scientific communication relevant to forensic science;8. plan, execute and present an independent piece of work, in which skills such as time management, problem solving and independence are evident.	<p>Teaching/learning methods and strategies <i>Achievement of learning outcomes is through a range of teaching and learning strategies including practical based learning, team working, case studies and problem based learning. The project module particularly addresses research design, methods and implementation. Throughout, the learner is expected to bring relevant knowledge to the programme, to develop and consolidate programme content and to ground his/her individual knowledge and understanding of the subject within the context of professional practice, where appropriate.</i></p> <p><i>Additional support during the project on placement is provided through employer and subject experts.</i></p> <p>Assessment <i>Assessment of 1-7 is through a range of assessments from coursework, formal examinations, oral presentations, research critiques, research practice, and portfolios. Additionally, skill 8 is assessed in the project report and practical portfolio. along with the implementation and analysis of an original piece of independent research.</i></p>
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D Transferable Skills and other attributes

D Transferable skills and other attributes	Teaching/learning methods and strategies
<p>A successful candidate will be able to: ...</p> <ol style="list-style-type: none">1. work effectively within a group taking on a variety of roles;2. utilise and develop extensive skill in using a variety of learning resources;3. undertake self reflection and to reflect on others, providing constructive feedback;4. undertake independent research to a high standard;5. demonstrate independent and self critical learning;6. engage confidently in academic and professional communication;7. understand and analyse different types of scientific data;8. disseminate and communicate findings both written and orally;9. design and justify research to meet a wide range of objectives;10. communicate clearly across a range of mediums to a wide variety of audiences11. write clearly, succinctly and appropriately;12. self-direct and demonstrate originality in tackling and solving problems;13. communicate effectively in a range of contexts;14. apply IT skills in professional and technical practice.	<p><i>Transferable skills such as problem solving, utilising learning resources, self reflection, the management of information and autonomy are developed to a very high standard across all modules and in the dissertation. Communication skills are developed in modules containing oral presentation exercises such as the court room exercise, but are also practised in the crime scene examination where communication and team work are essential. These activities develop written, graphical, visual and verbal communication skills.</i></p> <p><i>Personal effectiveness skills such as time management, goal setting, and management of learning are required in all modules. Professional skills involve the development and assessment of key practical and organisational skills which require self evaluation and reflection.</i></p> <p>Assessment <i>Skills 1-14 will be developed through a range of teaching and learning strategies including: practice based learning, team working, case studies, problem based learning. Students will be encouraged to consider how they might apply them outside the experience of their current studies. Assessment of specific skills is individual and in the context of project based learning.</i></p>

Section 4: Programme structure

Use next page to provide a structural chart of the programme showing:

- Level and credit requirements
- Interim award requirements
 - Module diet, including compulsory/core/optional modules

Full time route through the programme

ENTRY



Level M- Semester 1	<p>Compulsory modules</p> <p>USSKCB-30-M (first half)</p> <ul style="list-style-type: none"> • Forensic Biology and Genetics <p>USSJRX-30-M (first half)</p> <ul style="list-style-type: none"> • Forensic Analysis and Toxicology <p>USSJRY-30-M (first half)</p> <ul style="list-style-type: none"> • Advanced Crime Scene Science <p>USSKM3 -30-M (first half)</p> <ul style="list-style-type: none"> • Research Methods and Practical Skills <p>USSJ6C-60-M</p> <ul style="list-style-type: none"> • Research Project (proposal) 		<p>Interim Awards:</p> <p><u>PG Cert in Advanced Forensic Analysis</u></p> <ul style="list-style-type: none"> • Credit requirements 60 credits <p><u>PG Dip in Advanced Forensic Analysis</u></p> <ul style="list-style-type: none"> • Credit requirements 120 credits <p>Awards:</p> <p>Target highest <u>MSc Advanced Forensic Analysis</u></p> <ul style="list-style-type: none"> • Credit requirements 180 credits
Level M -Semester 2	<p>Compulsory modules</p> <p>USSKCB-30-M (second half)</p> <ul style="list-style-type: none"> • Forensic Biology and Genetics <p>USSJRX-30-M (second half)</p> <ul style="list-style-type: none"> • Forensic Analysis and Toxicology <p>USSJRY-30-M (second half)</p> <ul style="list-style-type: none"> • Advanced Crime Scene Science <p>USSJ6C-60-M</p> <ul style="list-style-type: none"> • Research Project (laboratory work) 		

Level M -Semester 3	Compulsory modules USSJ6C-60-M <ul style="list-style-type: none">• Research Project (laboratory work and write –up)		
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→ GRADUATION

Section 5: Entry requirements

Students who have graduated with a minimum of a lower second class honours degree from a programme fully accredited* by the Chartered Society of Forensic Sciences will be allowed direct entry to the course. Students with a minimum of a lower second class honours degrees in a relevant subject (on a programme not fully accredited by the CSoFS) will also be eligible to apply for the course but must attend a four week summer school prior to the start of the course. This route would be available to overseas students and for all students would incur an additional fee.

*Full accreditation means in all three component standards.

Section 6: Assessment Regulations

A: Approved to University Academic Regulations and Procedures Academic Regulations and Procedures 2016/17 (Corporate and Academic Services)

Section 7: Student learning: distinctive features and support

This is an advanced academic programme that provides for the development of new knowledge, skills and techniques in forensic science in a supportive learning environment. Delivery of the programme utilises the wide range of expertise of academics and professionals from the Faculty of Health and Life Sciences and external specialists. It also provides the student with the opportunity to gain advanced hands-on experience of the latest equipment used in many forensic labs and the opportunity to experience crime scene examination with a dedicated crime scene house, which is fully fitted with CCTV equipment enabling an excellent student learning experience. This is coupled with a garage and garden for simulating vehicular and outdoor crime scenes.

Programme flexibility occurs through provision of a choice of project topics enabling students to enhance skills in areas they wish to develop. These can be undertaken in the laboratories on campus or on placement with one of the police forces/ forensic providers. Flexibility is further provided through a modular programme that provides qualifications from a Postgraduate Certificate, to a Postgraduate Diploma, to a Masters Degree and through optional modes of study as full-time students.. A successful outcome should enhance an individual's opportunities to apply for a range of scientific positions within the forensic science sector and/or move into an appropriate PhD programme.

The programme has induction events that introduce the programme and its organisational context, distribute reading and other materials in advance of modules and provide training workshops. Training workshops, at induction will cover the use of all appropriate University facilities, for example the virtual learning resources and communications and administrative and training support structures. Induction training events are principally designed to make sure students know how to learn effectively, using the facilities they will need to support their learning.

Student learning for each module is structured as appropriate to the module and will include, for example, study preparation, workshop or practical sessions, lecture, seminar discussion, project work, independent learning, assessment.

Section 8 Reference points/benchmarks

This specification sets out how external and internal reference points have been drawn upon in programme design.

QAA reference points

The programme has been developed in accordance with QAA statements on postgraduate qualifications, and in relation to QAA Masters level descriptors (March 2010) and the structure of the proposed degree is fully consistent with the QAA position statement on postgraduate qualifications.

External reference points are government and industry development policy and research priorities.

Specifically:-

- Increased demand for forensic qualifications/research by industry and graduates of forensic science undergraduate courses.
- Faculty external activities and links to forensic analysis providers and forensic suppliers such as, Mass Spec analytical, LGC forensics, West technologies (forensics) and Orchard Cellmark

Internal reference points are the programme teams expertise, experience and professional links.

Specifically:-

- HLS development of postgraduate provision, supported by the Faculty Graduate School and postgraduate study facilities.
- HLS academic strengths in the current issues areas which are in demand for advanced knowledge and skill development in all aspects of Forensic Science.
- HLS applied interdisciplinary research, consultancy and professional practice. This includes work with national and regional government agencies, the professions, business and industry. For example: Mass Spec Analytical and Avon and Somerset Police.

University teaching and learning policies

In line with the universities 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 engagement and participation. The programme seeks to create an environment that will stimulate students to take responsibility for aspects of their learning, while the module team facilitate this learning. Module learning outcomes have been designed to ensure that students meet the overall programme learning outcomes on completion of the programme.

A variety of assessment methods are incorporated within the programme to cater for a diversity of approaches to learning. The programme teams recognise the importance of both summative and formative assessments and feedback as an integral part of the learning teaching process. All assessments comply with university assessment regulations, in line with this the MSc will be awarded to students who can demonstrate:

- systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their academic discipline, field of study, or area of professional practice;
- comprehensive understanding of techniques applicable to their own research or advanced scholarship;
- originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline;
- conceptual understanding that enables the student:
 - to evaluate critically current research and advanced scholarship in the discipline; and
 - to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

Holders of the qualification will be able to demonstrate skills that:

- deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences;
- demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level;
- continue to advance their knowledge and understanding, and to develop new skills to a high level and will have the qualities and transferable skills necessary for employment requiring:
 - the exercise of initiative and personal responsibility;
 - decision-making in complex and unpredictable situations;
 - the independent learning ability required for continuing professional development.

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 that 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. QA benchmarking for forensic science are under development in conjunction with the forensic science society.

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 postgraduate chemistry course.

Likewise this programme covers a sub-set of the subject knowledge expected of a masters level chemistry programme:

- 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.
- The selection, preservation and analysis of specimens in forensic toxicology.

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.

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 Chartered Society of Forensic Sciences is the professional body which operates an accreditation scheme for university courses in forensic science which requires knowledge of its three component standards – (1) Crime Scene Investigation, (2) Laboratory Analysis and (3) Interpretation, Evaluation, and Presentation of Evidence. Students may join The Chartered Society of Forensic Sciences as student members.

The CSoFS does not accredit programmes which have not had at least one run through.

The University's mission statement

This programme reflects well institutional policies and is fully consistent with the University's commitment to *“advance an inclusive, civilised and democratic society and its enrichment through education, research, consultancy and public service”* and with its commitment to *the SW region and enhancing its reputation amongst employers*. This programme aims to produce postgraduates who are able to make a positive contribution to society deploying their skills within the industry and giving them the ability to gain employment within the forensic field in either case work or research. Project based work, presentations, discussion and teamwork encourage inclusivity and an appreciation of other's cultures and beliefs. The University's committee structure including student representation at all levels, together with the Faculty of Health and Life Sciences Graduate School encourages an appreciation of democracy and a feeling of ownership and responsibility. The needs of the SW region for forensic genetics skills and career development are explicitly supported by the programme.

Research carried out by staff

Staff in the Faculty of Health and Life Sciences are research and consultancy active and consequently programme development, formal teaching and project work is underpinned and informed by current work. Staff contributing to the programme have an established record in supervising postgraduate research-based projects, and students may have the opportunity to carry out their projects working alongside research staff at post-doctorate level. Furthermore, there is on-going interdisciplinary research and practice which is encouraged and maintained by Faculty Research Centres and Groups.

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

- Statistical methods and databases for the estimation of evidential value
- Genealogy using DNA profiling
- Low-template DNA
- Improvements of MSMS methods used in the detection of illicit drugs
- Elemental composition of soil
- Chemical sensors for drugs and arson accelerants

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 Bristol Genomics Research Institute, and the Centre for Research in Biomedicine, 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.

Employer feedback/interaction

The faculty 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 has collaborated with a number of undergraduate research projects. 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 links with the Forensic Science team at UWE – staff have assisted with statistical evaluations required for court presentations and some students undertake their undergraduate research project with this company.

Conclusion

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. These are available on the University Intranet.

Programme monitoring and review may lead to changes to approved programmes. There may be a time lag between approval of such changes/modifications and their incorporation into an authorised programme specification. Enquiries about any recent changes to the programme made since this specification was authorised should be made to the relevant Faculty Academic Registrar.

FOR OFFICE USE ONLY

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Next Periodic Curriculum Review due date	2023			
Date of last Periodic Curriculum Review				