University of the West of England
BRISTOL

CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Forensic Analysis					
Module Code	USSKAU-30-2		Level	2	Version	1
Owning Faculty	Health and Applied Sciences		Field	Biological, Biomedical and Analytical Sciences		
Contributes towards	BSc Forensic Science; BSc Forensic Science (Biology); BSc Forensic Science (Chemistry); FdSc Forensic Science					
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard	
Pre-requisites	Scientific Investigation of Crime (USSJRY-30-1) AND Scientific Skills (USSJRW-30-1) OR Forensic Science and Crime Scene Investigation (USSKC6-30-1)		Co- requisites	None		
Excluded Combinations	None		Module Entry requirements			
Valid From	September 2015		Valid to	September 2021		

CAP Approval Date	28/03/2014

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to: • understand the chemical and physical nature of materials of forensic interest, their general distribution and potential evidential value (Component A); • design and undertake comprehensive laboratory examination/analysis of a wide variety of materials of forensic interest (Component A and Component B, element 1); • understand the relationship between experiment design and the methods available for analysing results (Component B, element 2) ; • evaluate experimental data and associated uncertainties using computational techniques and appropriate software packages (Component B, element 2). • understand the special considerations, range and potential usefulness of

	evidence available from outdoor and vehicle crime scenes (Component A).
Syllabus Outline	• The chemical and physical nature of materials of forensic interest e.g. fibres, glass, soil, paint, paper and ink, cartridges, accelerants and their environmental distribution. • The potential and realised evidential value of a range of the above mentioned materials to forensic casework. Critical evaluation of examinations carried out in real cases. • The use of specialist technology e.g. microscopic techniques, spectroscopy and chromatography for the analysis/examination of fibres, glass, paper, ink, cartridges, bullets, soils, paint and pollen. Plan and progression of examination and analysis related to hypotheses, cost of analysis and potential value of results. • Interpretation of experimental results: hypothesis testing, normality, analysis of variance, management of uncertainty. The use of appropriate software for data analysis. • The role of specialists e.g. Forensic Engineer. Forensic Accident Investigators, Ballistics Experts and Forensic Ecologists in the forensic examination of materials. • The examination and processing of specialist crime scenes e.g. road traffic collisions; accident scenes and outdoor scenes. • Feed forward practical examination of indoor crime scenes. • Development of graduate skills: Move to more independent working in the laboratory using bespoke instrument operation guides. Literature and information searching. Poster preparation and presentation. Oral communication skills. Team working skills. Self-assessment and monitoring. A wider understanding of graduate roles in Forensic Science. Critical evaluation of results.
Contact Hours	In semester 1, students will have 2 hours of lectures and 1 hour computer workshops in A weeks, combined with 2 hour laboratory practical classes and 1 hour lectures in B weeks. In semester 2, students will have 2 hours of lectures and 1 hour hands-on activity tutorials (e.g. examination of unusual materials; packaging of evidence), in A weeks, and 3 hour mini-project sessions or crime scene investigations in B weeks.
Teaching and Learning Methods	**Scheduled Learning** The purpose of this module is to enable students to understand what forensic evidence is, in the widest sense, how it can be analysed and examined in the laboratory and how results from analyses can be interpreted and evaluated. An integration of laboratory analysis and data evaluation is essential and reflected in the module structure. The theoretical underpinning of the module is delivered through formal lectures (30 hours) with additional bespoke resources made available in the laboratory and electronically. Students will apply the knowledge gained in the lectures and through their interaction with online materials in: • Laboratory sessions (12 hours), which cover many aspects of the syllabus through a 'hands on' approach. Students will have the opportunity to examine

a wide variety of materials of potential forensic interest in small groups, using specialist forensic instrumentation. Assessment of the laboratory sessions will encourage the students to make links to the lecture course and to critically evaluate their experimental results.

- Computer workshops (7 hours), which integrate practical software skills with an understanding of the management of experimental uncertainty.

- Interactive tutorials (11 hours), with students examining 'evidence', visiting mock outdoor, indoor and vehicle crime scenes and carrying out a vehicle examination.

- Mini-project group work (12 hours), in which the students submit a project proposal, discuss their proposal with staff, carry out an analysis of data they obtained in the laboratory and submit their results as a group poster (assessed) and individually present their poster to staff (assessed).

Independent Learning

Students are expected to further their understanding through engagement with printed resources and web-based material including worked answers to statistical problems, tutorials using Excel and MiniTab and innovative video tutorials. The students will also be able to monitor their own skill development through self-assessment tests and other learning material available on Blackboard.

It is expected that completion of laboratory practical write-ups, engagement with printed and online resources and completion of the mini-project will take students to the notional 300 hours of study associated with this module.

Key Information Sets Information

Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which is a requirement set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for.

Key Information Set - Module data

Number of credits for this module				30
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours
300	72	228	0	300

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

Written Exam: Unseen written exam.
Coursework: Written assignment or essay, report, dissertation, portfolio, project
Practical Exam: Oral Assessment and/or presentation, practical skills assessment, practical exam

Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section of this module description:

	Total assessment of the module:
	Written exam assessment percentage: 50%
	Coursework assessment percentage: 50%
	Practical exam assessment percentage: 0%
	100%
Reading Strategy	All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively. Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders. If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication will be given regarding how to access them and, if appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases.
Indicative Reading List	The latest edition of: • Caddy, B. *Forensic Examination of Glass and Paint Analysis and Interpretation*. London: Taylor and Francis. • Currell, G. and Dowman, A. A. *Essential Mathematics and Statistics for Science: Learning Resource*. Chichester: Wiley- Blackwell. • Holmes, D., Moody, P. and Dine, D. *Research Methods for the Biosciences*. Oxford: Oxford University Press. • Jackson, A.R.W. and Jackson, J.M. *Forensic Science*. Harlow: Pearson Education Ltd. • Langford, A. *Practical Skills in Forensic Science*. Harlow: Pearson Education. • Rhys Lewis, P., Reynolds, K. and Gagg, C. *Forensic Materials Engineering*: case studies Boca Raton, Florida: CRC Press. • Robertson, J. *Forensic Examination of Fibres*. London: Taylor and Francis. • Ruxyon, G.D. and Colegrave, N. *Experimental Design for the Life Sciences*. Oxford: Oxford University Press. • Siegel, J.A. (Ed in chief). *Encyclopaedia of Forensic Sciences*. Oxford: Academic Press. • SOFTWARE: Microsoft Excel 2010, Minitab .

Part 3: Assessment

Assessment Strategy	**Coursework 1 (40%):** An assessment of work undertaken in the practical sessions and subsequently, to include processing of images and data produced in the laboratory and answering of questions designed to test understanding of significance of experimental results. Students will also keep a contemporaneous laboratory notebook, which will be formatively assessed at the end of each practical session. The completed book will provide the students with a valuable resource for the level 3 'Interpretation of Forensic Evidence' module. UCY students on the FdSc Forensic Science studying this module will undertake laboratory work at UWE with the BSc cohort. **Coursework 2 (60%):** Coursework 2 is comprised of two elements. The mini-project is designed to deepen understanding of results obtained in the laboratory and to emphasise that data evaluation is not a 'stand-alone' topic but an integral part of experimental design and result evaluation. The wider skills of research are developed and students are prepared for the specific skills required for the final year project The assessment is based on a poster produced on the mini-project group work and the students individual defence of that poster, this specific assessment is designed to improve team working and communication skills. Students will further develop the skills portfolio they developed at level 1 either in Scientific Skills (USSJRW-30-1) or Biology and Mathematics for Forensic Science (USSKC4-30-1). The portfolio will contain a skills evaluation, reflection, action plan and CV. Students will be required to reflect upon skills development, academic achievement, progress towards the UWE Futures Award, work experience and engagement with professional bodies. **Examination: 3 hours.**

Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	**A:** **50%**	**B**: **50%**
First Sit		
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**	
1. 3 hour examination	100%	
Component B **Description of each element**	**Element weighting** **(as % of component)**	
1. Assessment of practical work	40%	
2. Mini-project poster presentation and Study Skills	60%	

Resit (further attendance at taught classes is not required)

Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. 3 hour examination	100%
2.	
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Assessment of practical results	40%
2. Poster submission	60%
If a student is permitted an **EXCEPTIONAL RETAKE** of the module the assessment will be that indicated by the Module Description at the time that retake commences.	