University of the West of Scotland
Module Descriptor

Session: 2023/24

Title of Module: Evaluating Forensic Evidence			
Code: CHEM08007	**SCQF Level: 8** (Scottish Credit and Qualifications Framework)	**Credit Points: 20**	**ECTS: 10** (European Credit Transfer Scheme)
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Kwok Chi Chim		

Summary of Module

Students will learn how to measure the chance of events happening using probabilities and using odds. First, probabilities will be discussed: probability laws, conditional probabilities, independence, Bayes' theorem, and tree diagrams. Second, the approach of measuring chance using odds is considered, and students will see how a balanced view of the strength of the evidence in support of one hypothesis compared with another can be captured by the likelihood ratio.
The binomial and normal distributions will be introduced to assess the probability of different types of evidence occurring by chance.
An overview of genetics will be given so that DNA evidence can be assessed. The evaluation of DNA evidence at a crime scene will be discussed, with emphasis on the choice of a suitable reference population. The use of DNA evidence in paternity and missing persons cases will also be considered.
Additionally, this module provides an introduction to inferential statistics, looking at confidence intervals for a population mean and hypothesis testing.
The Crime Scene Investigation part of the module will look at the procedures used in CSI and the roles of the various staff involved in CSI. Using a variety of types of scene as context the content will include searching, recovering, analysing, and interpreting evidence. There is a laboratory component which will give practical experience of the various procedures followed during a scene examination.
This module will develop a range of graduate attributes, including numeracy skills, problem-solving skills, and the ability to present a clear argument.

- Application of probability and statistics to forensic science
- Use of likelihood ratios to assess evidence
- Evaluation of DNA evidence
- Management of crime scenes
- Integrated recording of crime scene information using software
- Evidence collection from crime scenes

Module Delivery Method

Face-To-Face	Blended	Fully Online	HybridC	HybridO	Work-based Learning
	✓		✓		

Face-To-Face
Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.
Blended
A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations
Fully Online
Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.
HybridC
Online with mandatory face-to-face learning on Campus
HybridO
Online with optional face-to-face learning on Campus
Work-based Learning
Learning activities where the main location for the learning experience is in the workplace.

Campus(es) for Module Delivery						
The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
✓						

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1		Term 2	✓	Term 3	

Learning Outcomes: (maximum of 5 statements)
On successful completion of this module the student will be able to: L1. calculate probabilities and odds in a range of different ways required in forensic science. L2. apply the principles of assessing evidence in the context of forensic science. L3. draw conclusions about sets of measurements. L4. describe the procedures and people involved in the recording and recovery of material from various types of crime scene

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level 8. calculating probabilities and odds in a range of different ways. understanding the principles of assessing evidence. understanding the issues related to contamination of evidence and knowledge of the roles of various personnel involved at crime scenes.
Practice: Applied Knowledge and Understanding	SCQF Level 8. applying probabilities and odds in a range of different ways as required in forensic science.

	applying the principles of assessing evidence in routine contexts in forensic science. carrying out the standard techniques of crime scene investigation such as photography, note-taking, evidence packaging, systematically searching for evidence, and recovering various evidence types.	
Generic Cognitive skills	SCQF Level 8. critical evaluation of forensic evidence in routine contexts. drawing conclusions about sets of measurements. undertaking analysis of crime scenes found in real cases applying the concepts and methods discussed in class.	
Communication, ICT and Numeracy Skills	SCQF Level 8. reporting on the results of evaluating evidence. performing the calculations required to calculate probabilities and odds. conveying appropriate information from crime scenes in written notes, sketches, reports and photographs.	
Autonomy, Accountability and Working with others	SCQF Level 8. identifying and addressing their own learning needs, both within and outwith class time. being able to work as part of a team that plans and executes the investigation of crime scene.	
Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code: CHEM07006	**Module Title:** Science & Crime
	Other:	or other suitable background
Co-requisites	**Module Code:**	**Module Title:**

* Indicates that module descriptor is not published.

Learning and Teaching	
This module covers a wide variety of theoretical, conceptual and practical areas, which require a range of knowledge and skills to be displayed and exercised. Delivery of its syllabus content therefore involves a diversity of teaching and assessment methods suitable to the learning outcomes of the module; these include formal lectures, structured tutorials (work closely integrated with the lecture material),labs, completion and submission of written coursework making use of appropriate forms of IT and VLE, and independent study.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	24

Tutorial/Synchronous Support Activity	12
Laboratory/Practical Demonstration/Workshop	12
Independent Study	152
	200 Hours Total

****Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:
C.G.G. Aitken: Statistics and the Evaluation of Evidence for Forensic Scientists, John Wiley and Sons 2004

Ian Evett and Bruce Weir: Interpreting DNA Evidence – Statistical Evaluation for Forensic Scientists, John Wiley and Sons 1998 087893 1554

Bernard Robinson and G A Vignaux: Interpreting Evidence: Evaluating Forensic Science in the Courtroom,John Wiley and Sons, 1999 0471960268

Goodwin, W., Linaccre, A. and Sibte, H.: An Introduction to Forensic Genetics, Wiley 2007 978-0-470-01026-6

Andrew Jackson and Julie Jackson, Forensic Science, 4th Ed., Pearson Education Ltd. (2017) ISBN 978-1-292-08818-1

(**N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: Academic engagement procedure

Supplemental Information

Programme Board	Physical Sciences
Assessment Results (Pass/Fail)	No
Subject Panel	Physical Sciences
Moderator	Dr Ciaran Ewins
External Examiner	I Turner
Accreditation Details	
Changes/Version Number	2.17 Module Coordinator changed

Assessment: (also refer to Assessment Outcomes Grids below)
Continuous assessment worth 100% of the final mark The continuous assessment component in this module will consist of the following elements: (i) Written assignment worth 70% in statistics, and (ii) Reports from the CSI Labs worth 30% of the final mark. Further details, and the academic calendar when assessment is likely to feature will be provided within the module Information Pack.
(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.)

Assessment Outcome Grids (Footnote A.)

Component 1

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Class test (written)	✓	✓	✓		70	0
Laboratory/ Clinical/ Field notebook				✓	30	0
Combined Total For All Components					100%	0 hours

Footnotes
A. Referred to within Assessment Section above
B. Identified in the Learning Outcome Section above

Note(s):

1. More than one assessment method can be used to assess individual learning outcomes.
2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).
   This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity
This module is suitable for any student with appropriate chemistry background, however it should be noted that in order for you to complete this module the laboratory element of coursework will require to be undertaken, special support can be provided where necessary, consequently, if special support is needed to complete this part of the module, then the University's Health and Safety Officer should be consulted to make sure that safety in the laboratory is not compromised.

Current University Policy on Equality and Diversity applies. UWS Equality and Diversity Policy
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)