

**University of the West of Scotland
Module Descriptor**

Session: 2023/24

Title of Module: Forensic Statistics			
Code:	SCQF Level: 8 (Scottish Credit and Qualifications Framework)	Credit Points: 10	ECTS: 5 (European Credit Transfer Scheme)
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Kwok Chi Chim		
Summary of Module			
<p>In this module, students will learn how to measure the chance of events happening using probabilities and using odds. Content includes probability laws, conditional probabilities, independence, Bayes' theorem and tree diagrams. The approach of measuring chance using odds is considered and students will see how a balanced view of the strength of evidence in support of hypotheses can be captured by the likelihood ratio.</p> <p>The binomial and normal distributions will be introduced to assess the probability of different types of evidence occurring by chance.</p> <p>An overview of genetics and the use of databases will be given so that DNA evidence can be evaluated.</p> <p>There will also be an introduction to inferential statistics looking at confidence intervals for a population mean and hypothesis testing.</p> <ul style="list-style-type: none"> • Application of probability and statistics to forensic science • Use of likelihood ratios to evaluate evidence • Evaluation of DNA evidence 			

Module Delivery Method					
Face-To-Face	Blended	Fully Online	HybridC	HybridO	Work-based Learning
	✓		✓		
<p>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.</p> <p>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</p> <p>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.</p> <p>HybridC Online with mandatory face-to-face learning on Campus</p> <p>HybridO Online with optional face-to-face learning on Campus</p> <p>Work-based Learning Learning activities where the main location for the learning experience is in the workplace.</p>					

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. Evaluate competing hypotheses using likelihood ratios L3. Draw conclusions about sets of measurements	
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 ways. Describing the role of statistics in assessing DNA evidence. Demonstrating the awareness of the application of mathematical or statistical techniques, as appropriate, to the evaluating of forensic evidence.
Practice: Applied Knowledge and Understanding	SCQF Level 8. Using likelihood ratios to compare competing hypotheses.
Generic Cognitive skills	SCQF Level 8. Using a range of methods to analysis and draw conclusions about sets of measurements.
Communication, ICT and Numeracy Skills	SCQF Level 8. Using software to perform calculations on sets of data and make valid interpretations of the output.
Autonomy, Accountability and Working with others	SCQF Level 8. Identifying learning needs and study independently.
Pre-requisites:	Before undertaking this module the student should have undertaken the following:
	Module Code:
	Module Title:

	Other:	
Co-requisites	Module Code:	Module Title:

* Indicates that module descriptor is not published.

Learning and Teaching	
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	18
Laboratory/Practical Demonstration/Workshop	6
Independent Study	76
	100 Hours Total
**Indicative Resources: (eg. Core text, journals, internet access)	
<p>The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Andrew Jackson and Julie Jackson, Forensic Science, 4th Ed., Pearson Education Ltd. (2017) ISBN 978-1-292-08818-1</p> <p>Colin Aitken, Franco Taroni and Silvia Bozza, Statistics and the Evaluation of Evidence for Forensic Scientists, 3rd Ed., John Wiley and Sons (2020)</p> <p>Craig Adam, Essential Mathematics and Statistics for Forensic Science, John Wiley and Sons (2011)</p>	
(**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	
<p>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</p>	

Supplemental Information

Programme Board	Physical Sciences
Assessment Results (Pass/Fail)	No
Subject Panel	Physical Sciences

Moderator	Ciaran Ewins
External Examiner	Ian Turner
Accreditation Details	
Changes/Version Number	1

Assessment: (also refer to Assessment Outcomes Grids below)
Continuously assessed with one class test of 30% and two assignments of 70% in total.
(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)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Class test (written)	✓	✓	✓	30	0
Report of practical/ field/ clinical work	✓	✓	✓	70	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):
<ol style="list-style-type: none"> More than one assessment method can be used to assess individual learning outcomes. 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
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)