UNIVERSITY of BRADFORD

Module Descriptor

Statistics and Databases for Forensic Scientists

Module Code:	ARC5022-B
Academic Year:	2018-19
Credit Rating:	20
School:	School of Archaeological and Forensic Sciences
Subject Area:	Archaeology
FHEQ Level:	FHEQ Level 5
Module Leader:	Dr William Hale

Additional Tutors:
Dr Andrew Wilson, Mr Robert Janaway, Dr Catherine Batt, Dr Jo Buckberry

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	24
Practical classes and	12
Supervised time in	10
Directed Study	154

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Academic Year (Sept - May)

Module Aims

To provide a basis for understanding and performing standard descriptive and inferential statistics appropriate to forensic data. To develop an understanding of probability and Bayesian likelihood ratios which are commonly employed in forensic evidence. To provide an understanding of the nature of different potential data sets of evidence types for addressing fundamental questions in forensic science.

Outline Syllabus

Types of data: qualitative/quantitative/discrete/continuous
Presenting data: graphs and tables (including review of use of spreadsheets for collating numerical data)
Normally distributed data: frequency/arithmetic mean/standard deviation and variance.
Confidence limits and confidence intervals.
Hypothesis testing: use of t-tests, regression analysis; chi-square tests.
Parametric and non-parametric tests.
Likelihood ratios and the Bayesian approach.
Databases in forensic science that underpin Likelihood ratios.
Use of Bayesian approach in Court.
Calibration and error calculations in analytical data; and appropriate use of data and statistics.

Module Learning Outcomes

On successful completion of this module, students will be able to...

1 Understand the different types of data (qualitative/quantitative; nominal/ordinal/discrete/continuous).

2 Select and use appropriate statistical approaches to interpret and evaluate numerical data.

3 Understand the application of Likelihood ratios and the Bayesian approach to the interpretation of data in forensic science.

4 Understand the use and limitations of statistics as well as databases and data sets and their relationship to Likelihood ratios used in the Bayesian approach.

Learning, Teaching and Assessment Strategy

Lectures, workshops/practical

The formative self evaluation coursework will be linked to the workshop sessions.

Assessment 1 concentrates on handling numerical data, the selection of appropriate statistical approaches and the interpretation of the data. This will include the use of graphs and tables where appropriate.

Assessment 2 introduces an in depth approach to the use of competing propositions (prosecution and defence) the use of Likelihood ratios and the Bayesian approach to the interpretation of forensic data in a court context.

The supplementary assessments will be as original.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Coursework	Bayesian approach to data evaluation	0-2000 words	50%	No

Summative	Coursework	Coursework exercise in numerical data handling and presentation.	0-2000 words	50%	Yes
Formative	Coursework	Coursework self evaluation exercise in numerical data handling and presentation.		%	No

Legacy Code (if applicable)

Reading List

To view Reading List, please go to **rebus:list**.