

MODULE SPECIFICATION

Code: USSJU3-40-M **Title:** Forensic Biology and Genetics **Version:** 1

Level: M **UWE credit rating:** 40 **ECTS credit rating:** 20

Module type: Standard

Owning Faculty: Health and Life Sciences

Department: Applied Sciences

Faculty Committee approval: Quality and Standards Committee

Date: April 2011

Approved for Delivery by: N/A

Valid from: September 2012

Discontinued from:

Pre-requisites:

N/A

Co-requisites:

None

Entry Requirements:

N/A

Excluded Combinations:

None

Learning Outcomes:

The student will be able to:

- critically discuss current approaches to forensic genetic profiling;
- carry out DNA analysis and interpret different types of DNA profile that can be encountered in forensic genetics;
- apply statistical analysis to datasets often encountered by forensic scientists;
- assess analysis methods currently employed in forensic biology and DNA profiling;
- critically evaluate current practices and techniques in forensic biology and DNA analysis;
- demonstrate an advanced knowledge of a range of microscopes and microscopy techniques used in forensic biology;
- demonstrate an advanced understanding of the interpretation of blood patterns;
- communicate complex scientific procedures to both experts and non-experts;
- present information in appropriate terminology and be aware of the role of an expert witness;
- critically assess, present and discuss primary reference source material.

Syllabus Outline:

In this module students will study current techniques used in forensic biology and DNA profiling, including presumptive testing, DNA extraction, quantification, amplification, detection and interpretation of single, partial and mixed profiles. Statistical analysis of datasets often encountered by forensic scientists will also be covered e.g. using population genetics in the interpretation of DNA profiles.

Students will also study blood pattern analysis at an advanced level and the theory and use of microscopes including polarising and confocal for the examination of hairs and fibres as well as techniques such as Fluorescence In-situ Hybridisation (FISH). Students will learn what is required of an expert witness and how to present their findings both verbally and in writing to experts and non-experts.

Teaching and Learning Methods:

The module will be delivered as a mix of lectures, tutorials and laboratory based practicals, together with student centred case study.

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:

Most recent editions of:

*Butler JM. Fundamentals of Forensic DNA typing Elsevier Academic Press.

Goodwin W., Linacre A, & Hadi S. An Introduction to Forensic Genetics. Wiley

Jackson ARW & Jackson JM. Forensic Science. Prentice Hall.

Rapley R & Whitehouse D. Molecular Forensics. Wiley

Roberts P & Willmore C, The role of Forensic Science Evidence in Criminal Proceedings, HMSO

.

Robertson B & Vignaux G A, Interpreting Evidence - Evaluating Forensic Science in the Courtroom, John Wiley and Sons.

Wheeler BP, Wilson LJ. Practical Forensic Microscopy Wiley

* Recommended text

appropriate journals

Assessment:

Weighting between components A and B (standard modules only) A: 50% B: 50%

FIRST ATTEMPT

First Assessment Opportunity

Component A (*controlled*)

Description of each element

EX1 Examination (3 hours) assessment period 2

Element Wt (Ratio)

(*within Component*)

Final Assessment 1

Component B

Description of each element

CW1 Report of laboratory examination of evidence, prepared for court

CW2 Oral Presentation and questioning on scientific results

Element Wt (Ratio)

(*within Component*)

2

1

Second Assessment Opportunity (Resit) further attendance at taught classes is not required

Component A (*controlled*)

Description of each element

EX2 Examination (3hours) assessment period 3

Element Wt (Ratio)

(*within Component*)

Final Assessment 1

Component B

Description of each element

CW3 Report of laboratory examination of evidence, prepared for court

CW4 Oral Presentation and questioning on scientific results (could be via video conferencing)

Element Wt (Ratio)

(*within Component*)

2

1

EXCEPTIONAL SECOND ATTEMPT Attendance at taught classes is required.

Specification confirmed by**Date**
(Associate Dean/Programme Director)