



Module Specification

Forensic Biology and Genetics

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Part 1: Information

Module title: Forensic Biology and Genetics

Module code: USSJUP-30-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Molecular Genetics 2023-24

Excluded combinations: Advanced Analytical Science 2023-24, Forensic Analysis and Toxicology 2023-24

Co-requisites: Genomic Technologies 2023-24

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisites: students must have passed USSKB7-15-2 Molecular Genetics. Co-requisites: students must have passed USSKBF-30-3 Genomic Technologies.

Features: Excluded Combinations: USSKBQ-30-3 Advanced Analytical Science; USSJUR30-3 Forensic Analysis and Toxicology.

Educational aims: See learning outcomes.

Outline syllabus: Current techniques used in forensic biology and the use of DNA in forensic science. Topics will include the use of Y chromosome, mitochondrial DNA and the interpretation of partial and mixed profiles.

Statistical analysis of datasets often encountered by forensic scientists e.g. using population genetics in the interpretation of DNA profiles.

The theory and practice of forensic detection of body fluids and use of RNA for their determination.

The theory and practice of advanced microscopic techniques, including polarising and confocal, for the examination of hairs, fibres and textiles.

Generic Graduate Skills:-

Practiced:

Emotional Intelligence

Globally Engaged

Evidenced:

Communication

Professionalism

Critical Thinking

Digital Fluency

Innovative and Enterprising

Forward Looking

Part 3: Teaching and learning methods

Teaching and learning methods: The content of the module is delivered through a mixture of lectures, tutorials and practical classes .

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Critically discuss current approaches to and practice in, forensic biology and forensic genetic profiling

MO2 Carry out DNA analysis and interpret different types of DNA profile that can be encountered in forensic genetics

MO3 Apply statistical analysis to datasets often encountered by forensic scientists

MO4 Assess analytical methods currently employed in forensic biology and DNA profiling

MO5 Demonstrate an advanced knowledge of a range of microscopes and microscopy techniques used in forensic biology

MO6 Present complex analyses and their interpretation in a manner understandable to a lay audience

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 234 hours

Face-to-face learning = 66 hours

Total = 300

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ussjup-30-3.html) via the following link <https://uwe.rl.talis.com/modules/ussjup-30-3.html>

Part 4: Assessment

Assessment strategy: The problem-solving approach in tutorial and laboratory classes enables students to reflect on and refine their knowledge, understanding and skills throughout the module. Informal formative feedback is given throughout these learning situations, enabling students to evidence their achievements in the

summative assessments.

Assessment 1 is a viva voce based on interpretation of DNA profiles. Students will be assessed by two members of staff and questioned to establish their depth of understanding on the techniques they have employed in their data analysis carried out in semester 1. Understanding of forensic evidential value will also be explored. This is an appropriate assessment for the learning outcome related to the communication of the results of DNA analysis as professional forensic scientists are required to communicate these results to a lay jury in court.

Students work on casework connected to a simulated forensic case involving biological evidence and produce contemporaneous laboratory records on their casework, in keeping with professional practice in forensic science. The laboratory examination record is a detailed documentation of all laboratory work and includes anti-contamination procedures, a search and recovery, examination and analysis. Assessment 2 is their casework portfolio of laboratory examination records.

Assessment 3 is an online exam taken over a 24 hour period. This assessment will provide students with an opportunity to demonstrate the extent to which they have met theoretical aspects of the learning outcomes for the module.

Assessment tasks:

In-class test (First Sit)

Description: Viva voce examination (15 minutes)

Weighting: 10 %

Final assessment: No

Group work: No

Learning outcomes tested: MO5, MO6

Portfolio (First Sit)

Description: Laboratory Examination Records- including critical evaluation

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4, MO5

Examination (Online) (First Sit)

Description: Online examination (24 hours)

Weighting: 40 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO3

In-class test (Resit)

Description: Viva voce examination (15 minutes)

Weighting: 10 %

Final assessment: No

Group work: No

Learning outcomes tested: MO5, MO6

Portfolio (Resit)

Description: Laboratory Examination Records- including critical evaluation

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4, MO5

Examination (Online) (Resit)

Description: Online examination (24 hours)

Weighting: 40 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Forensic Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Forensic Science [Sep][FT][Frenchay][4yrs] MSci 2021-22

Forensic Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2020-21

Forensic Science [Sep][SW][Frenchay][5yrs] MSci 2020-21

Forensic Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2020-21

Forensic Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21

Forensic Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2019-20

Forensic Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2019-20