## MODULE DESCRIPTOR

### Module Title

Forensic DNA Profiling

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|---|---|---|---|
| Reference | AS4170 | Version | 3 |
| Created | April 2023 | SCQF Level | SCQF 10 |
| Approved | March 2018 | SCQF Points | 15 |
| Amended | September 2023 | ECTS Points | 7.5 |

### Aims of Module

To provide the students with up to date concepts and principles of forensic DNA profiling and to understand the relevance of population genetics.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

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|---|---|
| 1 | Examine the specific relevance of DNA profiling in forensic science, in particular the importance of statistical calculations. |
| 2 | Evaluate appropriate methodologies for recovery of biological evidence for DNA profiling. |
| 3 | Critique the utilisation of a chosen method of DNA profiling in a specific investigation. |
| 4 | Examine the relevance of population genetics in forensic science, and in population and evolution studies. |

### Indicative Module Content

DNA Isolation, purification and analysis, PCR (including multiplexing), STRs, SNPs, sequencing, electrophoresis. Recovery of biological evidence. Laboratory anti-contamination procedures. Interpretation and reporting of DNA results. Hardy-Weinburg and allele frequencies, population statistics and databases used in DNA profiling.

### Module Delivery

This is a lecture based module supplemented with student centred learning activities.

| Indicative Student Workload | Full Time | Part Time |
|---|---|---|
| Contact Hours | 40 | N/A |
| Non-Contact Hours | 110 | N/A |
| Placement/Work-Based Learning Experience [Notional] Hours | N/A | N/A |
| TOTAL | 150 | N/A |
| *Actual Placement hours for professional, statutory or regulatory body* | | |

| Module Ref: | AS4170 v3 |
|---|---|

## ASSESSMENT PLAN

*If a major/minor model is used and box is ticked, % weightings below are indicative only.*

### Component 1

| Type: | Examination | Weighting: | 100% | Outcomes Assessed: | 1, 2, 3, 4 |
|---|---|---|---|---|---|
| Description: | Closed book written examination, assessing knowledge of theoretical and practical aspects of the module, including a lab-related critical assessment question. | | | | |

## MODULE PERFORMANCE DESCRIPTOR

### Explanatory Text

Component 1 (Examination) comprises 100%. A minimum of a Grade D is required to pass the module.

| Module Grade | Minimum Requirements to achieve Module Grade: |
|---|---|
| **A** | A |
| **B** | B |
| **C** | C |
| **D** | D |
| **E** | E |
| **F** | F |
| **NS** | Non-submission of work by published deadline or non-attendance for examination |

## Module Requirements

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| Prerequisites for Module | Successful completion of Stage 3 Forensic and Analytical Science or equivalent. |
| Corequisites for module | None. |
| Precluded Modules | None. |

## INDICATIVE BIBLIOGRAPHY


| | |
|---|---|
| 1 | GRIFFITHS, A.J.F., WESSLER, S.R., CARROLL, S.B., and DOEBLEY, J. *An Introduction to Genetic Analysis. International Student Version.* Current Edition. W H Freeman. |
| 2 | GOODWIN, W., LINACRE, A., HADI, S. *An Introduction to Forensic Genetics* Current Edition. Wiley-Blackwell. |
| 3 | ELKINS, K.M. *Forensic DNA Biology: A Laboratory Manual.* Current Edition. Academic Press. |
| 4 | BUTLER, J.M. *Fundamentals of Forensic DNA Typing.* Current edition. Academic Press. |
| 5 | HARTL, D.L. and CLARK, A.G. *Principles of Population Genetics.* Current edition. Sinauer Associates. |