

MODULE DESCRIPTOR

Module Title

Forensic Genetics

Reference	AS3017	Version	5
Created	June 2017	SCQF Level	SCQF 9
Approved	August 2008	SCQF Points	15
Amended	September 2017	ECTS Points	7.5

Aims of Module

To provide the student with the ability to discuss the significance and fundamental aspects of heredity, molecular genetics and molecular biology and their relevance to forensic science.

Learning Outcomes for Module

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

- 1 Explain the principles of genetic inheritance and apply these to problem solving.
- 2 Describe the processes and regulation of gene expression in prokaryotes and eukaryotes.
- 3 Discuss the relevance of genetics and molecular biology to DNA analysis in forensic science.
- 4 Evaluate appropriate methodologies for recovery of biological evidence for DNA profiling.

Indicative Module Content

Mendelian and complex genetic inheritance patterns and gene mutation. Nuclear, mitochondrial and chloroplast DNA. DNA replication. Transcription. Genetic Code and Translation. Induction and repression of gene expression. DNA Isolation, purification and analysis, gene cloning, PCR, STR, SNPs, sequencing, electrophoresis. Recovery of biological evidence. Laboratory anti-contamination procedures. Interpretation and reporting of DNA results.

Module Delivery

This is a lecture based module supplemented with practical laboratory classes and 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
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

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.

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

This module is assessed using the one component of assessment as detailed in the Assessment Plan. To pass this module candidates must achieve a Module Grade D or better.

Module Grade	Minimum Requirements to achieve Module Grade:
A	Final mark of 70% or greater in C1
B	Final mark of between 60-69% in C1
C	Final mark of between 50-59% in C1
D	Final mark of between 40-49% in C1
E	MARGINAL FAIL. Final mark of between 35-39% in C1
F	FAIL. Final mark of less than 35% in C1
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	Successful completion of Stage 2 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 BROWN, T. *Introduction to Genetics: A Molecular Approach*. Current Edition. Taylor & Francis.