Module Title **Forensic Genetics** **Keywords** Genetic Inheritance, Gene Expression, Gene Regulation, DNA Purification, DNA Analysis and Interpretation	Reference AS3017 SCQF SCQF Level 9 SCQF Points 15 ECTS Points 7.5 Created May 2002 Approved August 2008 Amended June 2014 Version No. 4

This Version is No Longer Current

The latest version of this module is available here

Prerequisites for Module

Successful completion of Stage 2 of the course or equivalent.

Corequisite Modules

None.

Precluded Modules

None.

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

Indicative Student Workload

Contact Hours	Full Time
Laboratory Work	3
Lectures	29
Tutorials	8
Directed Study	
Directed Study	40
Private Study	
Private Study	70

Mode of Delivery

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

Assessment Plan

Learning Outcomes Assessed

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.

Component 1	1,2,3,4

Component 1: Closed book examination.
Attendance at the laboratory session is compulsory.

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.