

**University of the West of Scotland
Module Descriptor**

Session: 2023/24

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| Title of Module: Forensic Genetics | | | |
| Code: CHEM08017 | SCQF Level: 8 (Scottish Credit and Qualifications Framework) | Credit Points: 20 | ECTS: 10 (European Credit Transfer Scheme) |
| School: | School of Computing, Engineering and Physical Sciences | | |
| Module Co-ordinator: | Ann-Sophie Korb | | |
| Summary of Module | | | |
| <p>The use of DNA and genetics has changed the field of forensic science. Using new technology, and understanding the information obtained from DNA is key to many crimes. This module aims to present the importance of genetics and genetic profiling in forensic science. It will build on the skills and knowledge learned in the previous academic year, and include how to collect, characterise, and store biological samples and materials, STR profiles, and some statistical interpretation of these, with specific focus on the analysis (such as PCR and EPG) and interpretation of results.</p> <p>Undertaking this module will develop a range of graduate attributes. Valuable experience in practical work, analysing and interpreting data will develop critical thinking skills. Basic knowledge of Genetics will be extended to include its applications and relevance to forensic work, and ambition developed by consideration of current cutting-edge developments in the field. Working as a group for presentation skills on current technologies will enhance communication, collaboration, and creativity.</p> | | | |

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| Module Delivery Method | | | | | |
| Face-To-Face | Blended | Fully Online | HybridC | HybridO | Work-based Learning |
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| <p>Face-To-Face Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.</p> <p>Blended A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations</p> <p>Fully Online Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.</p> <p>HybridC Online with mandatory face-to-face learning on Campus</p> <p>HybridO Online with optional face-to-face learning on Campus</p> <p>Work-based Learning Learning activities where the main location for the learning experience is in the workplace.</p> | | | | | |

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| Campus(es) for Module Delivery |
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The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)

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| Paisley: | Ayr: | Dumfries: | Lanarkshire: | London: | Distance/Online Learning: | Other: |
| ✓ | | | | | | |

Term(s) for Module Delivery

(Provided viable student numbers permit).

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| Term 1 | | Term 2 | ✓ | Term 3 | |
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Learning Outcomes: (maximum of 5 statements)

On successful completion of this module the student will be able to:

- L1. Show an understanding of the structure and function of DNA in the genetics
- L2. Develop an understanding of the role and importance of DNA in forensic sciences.
- L3. Apply analytical skills to the interpretation of data from genetic tests to fulfil forensic investigations and reporting requirements.
- L4. Accurately demonstrate the collection, characterisation, and preservation of DNA in a forensic context.
- L5. Demonstrate practical skills in performing molecular techniques relevant to genetics and recording, analysing and interpreting results

Employability Skills and Personal Development Planning (PDP) Skills

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| SCQF Headings | During completion of this module, there will be an opportunity to achieve core skills in: |
| Knowledge and Understanding (K and U) | SCQF Level 8. Demonstrate a broad knowledge of genetics in a forensic context. |
| Practice: Applied Knowledge and Understanding | SCQF Level 8. Apply the theoretical knowledge gained to perform experiments with genetic material and interpret the results. |
| Generic Cognitive skills | SCQF Level 8. Use a range of approaches to formulate appropriate responses to problems in Mendelian and molecular genetics. |
| Communication, ICT and Numeracy Skills | SCQF Level 8. Communicate effectively orally and in writing. Analyse and interpret data where appropriate. |
| Autonomy, Accountability and Working with others | SCQF Level 8. Working in teams to perform practical work will require time management, organisational skills and awareness of professional practice. |
| Pre-requisites: | Before undertaking this module the student should have undertaken the following: |

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| | Module Code: CHEM07013 | Module Title: Molecules of Life |
| | Other: | or other suitable background |
| Co-requisites | Module Code: | Module Title: |

* Indicates that module descriptor is not published.

| Learning and Teaching | |
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| <p>Delivery of this module will include formal lectures, tutorials focused on problem solving and application of theoretical knowledge and practical laboratory work. The material in this module will develop concepts introduced in level 7. The laws and concepts of inheritance will be introduced in formal lectures. The basic concepts will then be applied in practical work, which includes a series of genetic experiments and problem solving. This will reinforce basic concepts and encourage a deeper learning approach. Concepts in molecular genetics will be further developed from level 7 by looking at replication, transcription, translation and their control in more detail. Relevance to DNA technology applications will be highlighted appropriately to maintain relevance to current developments. Practical sessions and tutorials will support the lecture material. Data from practical experiments will be analysed and presented appropriately, to encourage results to be discussed in the context of theory. The module will be supported by material on the university VLE.</p> | |
| <p>Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:</p> | <p>Student Learning Hours (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)</p> |
| Lecture/Core Content Delivery | 10 |
| Tutorial/Synchronous Support Activity | 18 |
| Laboratory/Practical Demonstration/Workshop | 20 |
| Independent Study | 152 |
| | 200 Hours Total |
| **Indicative Resources: (eg. Core text, journals, internet access) | |
| <p>The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Jamieson, A., Bader S. (2016) A Guide to Forensic DNA Profiling, Chichester: Wiley.</p> <p>Goodwin, W., Linacre, A. Hadi S. (2011) An Introduction to Forensic Genetics, 2nd edn., Chichester: Wiley-Blackwell.</p> <p>Jackson, A., Jackson, J. (2017) Forensic Science, 4th edn., Chichester: Wiley</p> | |

Snustad, D.P., Simmons, M.J. (2016) Principles of Genetics, 7th edn., Chichester: Wiley.

(**N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: [Academic engagement procedure](#)

Supplemental Information

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| Programme Board | Physical Sciences |
| Assessment Results (Pass/Fail) | No |
| Subject Panel | Physical Sciences |
| Moderator | Dr Mohammed Yaseen |
| External Examiner | I Turner |
| Accreditation Details | |
| Changes/Version Number | 1.04 Updated contact hours to match Curriculum Framework. Changed method of delivery from blended delivery to Hybrid-C delivery. Updated Indicative Resources to match Cite them Right Harvard referencing style. |

Assessment: (also refer to Assessment Outcomes Grids below)

Class Tests

Coursework

(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.
(ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.)

Assessment Outcome Grids (Footnote A.)

Component 1

| Assessment Type (Footnote B.) | Learning Outcome (1) | Learning Outcome (2) | Learning Outcome (3) | Learning Outcome (4) | Learning Outcome (5) | Weighting (%) of Assessment Element | Timetabled Contact Hours |
|-------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------------------------------|--------------------------|
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| Class test (written) | ✓ | ✓ | | ✓ | ✓ | 50 | 0 |
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| Component 2 | | | | | | | |
| Assessment Type (Footnote B.) | Learning Outcome (1) | Learning Outcome (2) | Learning Outcome (3) | Learning Outcome (4) | Learning Outcome (5) | Weighting (%) of Assessment Element | Timetabled Contact Hours |
| Laboratory/ Clinical/ Field notebook | | | ✓ | | ✓ | 50 | 0 |
| Combined Total For All Components | | | | | | 100% | 0 hours |

Footnotes

A. Referred to within Assessment Section above

B. Identified in the Learning Outcome Section above

Note(s):

1. More than one assessment method can be used to assess individual learning outcomes.
2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).
This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity

Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module is laboratory-based and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations. More information on the University's EDI policies can be accessed at: [https://www.uws.ac.uk/about-uws/uws-commitments/equality-diversity-inclusion/UWS Equality and Diversity Policy](https://www.uws.ac.uk/about-uws/uws-commitments/equality-diversity-inclusion/UWS%20Equality%20and%20Diversity%20Policy)

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)