

Session: 2022/23

Title of Module: Genetic Analysis in Biomedical Science			
Code: BIOL11012	SCQF Level: 11 (Scottish Credit and Qualifications Framework)	Credit Points: 20	ECTS: 10 (European Credit Transfer Scheme)
School:	School of Health and Life Sciences		
Module Co-ordinator:	John McLean		
Summary of Module			
<p>This module is designed to provide an in-depth coverage of the major advances in nucleic acid technology primarily in our understanding of genetics in diseases and conditions of relevance to biomedical science. The application of available and developing technologies in detection, monitoring, therapy, and prognosis will be discussed.</p> <p>Students will gain a critical understanding of the application of nucleic acid analysis in biomedical science. The module content will build upon the basic knowledge of nucleic acids and their biological functions to study the processes underlying gene expression and manipulation including topics such as splicing, sequencing, gene cloning and nucleic acid amplification. The module will also examine how identification and characterisation of genes involved in disease can aid their detection, diagnosis, and treatment. The module will be student centred and allow students to apply knowledge gained in an area of interests to them.</p> <p>The fully online/distance learning version of the module is available only to students currently employed by an appropriate UK-based healthcare provider (e.g. IBMS-approved training site). Completion of the module allows the student to meet the following graduate attributes: critical thinker, digitally literate, analytical.</p>			

Module Delivery Method					
Face-To-Face	Blended	Fully Online	HybridC	HybridO	Work-based Learning
✓		✓			
<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>					

Campus(es) for Module Delivery						
The module will normally be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
			✓		✓	
Term(s) for Module Delivery						
(Provided viable student numbers permit).						
Term 1	✓	Term 2		Term 3		

Learning Outcomes: (maximum of 5 statements)	
<p>On successful completion of this module the student will be able to:</p> <p>L1. Discuss critically the techniques involved in gene detection and analysis specifically in biomedical science.</p> <p>L2. Demonstrate an in depth understanding of the implications and relevance of genome projects.</p> <p>L3. Be able to integrate and critically analyse information from a range of sources through directed independent learning.</p>	
Employability Skills and Personal Development Planning (PDP) Skills	
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 11. A broad and integrated knowledge of the application of biomedical science, particularly the utility of genetic analysis.
Practice: Applied Knowledge and Understanding	SCQF Level 11. Demonstrate critical analysis of the processes in selected pathological conditions.
Generic Cognitive skills	SCQF Level 11. Apply critical analysis, evaluation and synthesis to issues which are at the forefront of selected pathological conditions.
Communication, ICT and Numeracy Skills	SCQF Level 11. Undertake critical evaluations of a wide range of numerical and graphical data through the use of case studies and directed learning.
Autonomy, Accountability and Working with others	SCQF Level 11. Take responsibility for own work and for utilising a significant range of resources.

Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code:	Module Title:
	Other:	Equivalent module from a Biomedical Science or Bioscience degree or appropriate APEL.
Co-requisites	Module Code:	Module Title:

* Indicates that module descriptor is not published.

Learning and Teaching	
During completion of this module, the learning activities undertaken to achieve the module learning outcomes will include formal lectures, structured seminars and tutorials, and independent study. VLE-based support materials will be available to supplement the module.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	Student Learning Hours (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	22
Laboratory/Practical Demonstration/Workshop	14
Independent Study	164
	200 Hours Total
**Indicative Resources: (eg. Core text, journals, internet access)	
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Due to the advanced nature of the module content the required and recommended reading will in part be drawn from current review articles and research papers in the human clinical genetics and cancer field e.g. PNAS, Science, Nature Genetics, Oncogene, etc Essential: New Clinical Genetics; Reid A, Donnai Dian; 2007; ISBN 9781904842316 Scion Publishing Ltd	
(**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 Where a module has Professional, Statutory or Regulatory Body requirements these will be listed here: Attendance at synchronous sessions (lectures, tutorials and practicals), completion of asynchronous activities, and submission of assessments to meet the learning outcomes of the module. Attendance at synchronous sessions is not required for students undertaking the	

distance learning version of the module.

Supplemental Information

Programme Board	Biological Sciences and Health
Assessment Results (Pass/Fail)	No
Subject Panel	Biology L7-11
Moderator	Robin Freeburn
External Examiner	D Stobo
Accreditation Details	This module is part of the MSc Advanced Biomedical Science programme; accredited by Institute of Biomedical Science (IBMS).
Version Number	2.10

Assessment: (also refer to Assessment Outcomes Grids below)

Review/ Article/ Critique/ Paper

Case Study - Wiki

(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)	Weighting (%) of Assessment Element	Timetabled Contact Hours	
Case study	✓	✓	✓	50	0	
Component 2						
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Weighting (%) of Assessment Element	Timetabled Contact Hours	
Review/ Article/ Critique/ Paper	✓	✓	✓	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

In line with current legislation (Equality Act, 2010) and the UWS Equality, Diversity, and Human Rights Code, our modules are accessible and inclusive, with reasonable adjustment for different needs where appropriate. Module materials comply with University guidance on inclusive learning and teaching, and specialist assistive equipment, support provision and adjustment to assessment practice will be made in accordance with UWS policy and regulations. Where modules require practical and/or laboratory-based learning or assessment required to meet accrediting body requirements the University will make reasonable adjustment such as adjustable height benches or assistance of a 'buddy' or helper.

Please refer to the UWS Equality and Diversity Policy at the following link:

<https://www.uws.ac.uk/about-uws/uws-commitments/equality-diversity-inclusion/>

[UWS Equality and Diversity Policy](#)

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