Module Descriptor

Title	Genetic Analysis in Biomedical Science		
Session	2026/27	**Status**	Published
Code	BIOL11012	**SCQF Level**	11
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	Amelie Juin		

Summary of Module

This module is designed to provide an indepth 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.

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.

The distance learning version of the module is available only to HCPC-registered Biomedical Scientists enrolled on the IBMS accredited MSc Advanced Biomedical Science programme..

Completion of the module allows the student to meet the following gardaute attributes: critical thinker, digitally literate, analytical.

Module Delivery Method	**On-Campus[1]**	**Hybrid[2]**	**Online[3]**	**Work -Based Learning[4]**
	☒	☐	☒	☐

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Campuses for Module Delivery	☐ Ayr ☐ Dumfries		☒ Lanarkshire ☐ London ☐ Paisley		☒ Online / Distance Learning ☐ Other (specify)	
Terms for Module Delivery	Term 1	☒	Term 2	☐	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Discuss critically the techniques involved in gene detection and analysis specifically in biomedical science.
L2	Demonstrate an in depth understanding of the implications and relevance of genome projects.
L3	Be able to integrate and critically analyse information from a range of sources through directed independent learning.
L4	
L5	

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 11** A broad and integrated knowledge of the application of biomedical science, particularly the utility of genetic analysis.
Practice: Applied Knowledge and Understanding	**SCQF 11** Demonstrate critical analysis of the processes in selected pathological conditions.
Generic Cognitive skills	**SCQF 11** Apply critical analysis, evaluation and synthesis to issues which are at the forefront of selected pathological conditions.
Communication, ICT and Numeracy Skills	**SCQF 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 11** Take responsibility for own work and for utilising a significant range of resources.

Prerequisites	**Module Code**	**Module Title**
	Other Equivalent module from a Biomedical Science or Bioscience degree or appropriate APEL.	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching

In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.

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** (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
n/a	
n/a	
n/a	
TOTAL	

Indicative Resources

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)

Attendance and Engagement Requirements

In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are attending and participating in all timetabled programme activities including on-campus and online teaching sessions, asynchronous online learning activities, placement, work-based elements, course-related learning resources, and complete assessments and submit these on time.

For the purposes of this module, academic engagement equates to the following:

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.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. 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.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Biological Sciences Health**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Biology
Moderator	Robin Freeburn
External Examiner	A Khan
Accreditation Details	IBMS
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	3

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Review/ Article/ Critique/ Paper
Assessment 2
Case Study - Wiki
Assessment 3
(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 Module Handbook.)

Component 1

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Review/ Article/ Critique/ Paper	☒	☒	☒	☐	☐	50	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Case study	☒	☒	☒	☐	☐	50	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	0 hours

Change Control

What	When	Who
New Module Coordinator	November 2024	Amelie Juin
New Version Number	November 2024	Amelie Juin
Changing the wording in paragraph 3 of module summary	30/01/26	Farah Jaber