

## Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and programme title:	PGCert Genomic Medicine
Name of interim award(s):	
Duration of study / period of registration:	1 Academic Year
Queen Mary programme code(s):	
QAA Benchmark Group:	
FHEQ Level of Award:	Level 7
Programme accredited by:	QMUL
Date Programme Specification approved:	
Responsible School / Institute:	William Harvey Research Institute

Schools / Institutes which will also be involved in teaching part of the programme:

Barts Cancer Institute

Collaborative institution(s) / organisation(s) involved in delivering the programme:

UCL/GOSH

### Programme outline

The programme has a modular structure, and the learning delivered will provide the academic background and specialist knowledge and skills required for undertaking work and research in the area of genomics (e.g. routine diagnostic and research laboratories within the NHS).

For PGCert in Genomic Medicine- students are expected to complete 4 modules (4x15 credit modules= 60 credits),

Students are expected to select two out of three core modules from the modules listed below:

WHR7201-Fundamentals in Human Genetics and Genomics

WHR7202- Omics Techniques and the their application to Genomic Medicine

WHR7206- Bioinformatics, Interpretation and data quality assurance in Genomic analysis

And additional two modules of their choice from the following modules:

Either any remaining core modules or:

WHR7203- Genomics of Common and Rare diseases

WHR7204- Molecular Pathology of Cancer and application in cancer diagnosis, screening, and treatment  
 WHR7205- Pharmacogenomics and Stratified Healthcare  
 WHR7211- Application of Genomics in Infectious Disease  
 WHR7207- Ethical, Legal and Social Issues in Genomic Medicine  
 WHR7208- Genetics and Genomics Counseling  
 WHR7209- Economic Models and Human Genomics  
 WHR7210- Expanding the content of the MSc in Genomic Medicine with workplace based Modules

## Aims of the programme

Advances in technology and informatics have fueled an exponential growth in genomics research which in turn has transformed our understanding of disease biology and opening new avenues in drug discovery and patient treatment. This has created an urgent need to train staff across the NHS and researchers in the broader biomedical sector in to this discipline. Genomics has strong potential to impact patient care but will require highly trained professionals to implement it both at the level of the pharmaceutical industry and the health care system.

- demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level
- continue to advance their knowledge and understanding, and to develop new skills to a high level.
- proficiency in the application of genomics in Clinical Practice and Inter-professional Skills demonstrated by
- the ability to work with all sectors practising Genomic Medicine within the Healthcare Environment
- the ability to understand the structure of the NHS and the role Healthcare Scientists play
- the ability to manage the work place and interact with colleagues

## What will you be expected to achieve?

We have developed a set of lectures tailored to the varied qualification and experience of entrants supplemented by online tutorials for standard informatics skills in order students acquire the necessary skills for analysis and interpretation of genomic data in a medical context.

### Academic Content:

A 1	A solid theoretical foundation in the area of basic genetics and genomics to the participants in order to critique the study of disease genetics and how genomic information can be utilised to understand disease mechanisms and biology
A 2	Statistical and bioinformatics techniques to analyse genetic and genomic data including the use of publicly available databases and literature searches to critically assess and annotate findings of these analyses
A 3	An introduction to the field of omics and state-of –the-art methodologies for high throughput analysis of DNA, RNA, proteins, and metabolites
A 4	Comprehensive analysis of the molecular and genetic approaches to the diagnosis and classification of diseases - different module options are available e.g. on common and rare diseases, cancer, infectious diseases
A 5	Critique of the complexity of pharmacogenomics and their effect of medication on individuals based on their genetic makeup, i.e. techniques to stratify patients at risk of adverse drug reactions as well as tailoring drug treatment to improve patient response.

Disciplinary Skills - able to:

B 1	Display an awareness of the scientific needs to support the development and understanding of the field of human genomics.
B 2	Interpret critically the research of others and develop the skills to formulate own research questions
B 3	Display a critical view to the potential ethical issues arising from the application of genomic research in patient care
B 4	Demonstrate counseling skills how to provide an appropriate support to individuals affected by a genetic condition or are predisposed to a genetic condition

Attributes:

C 1	Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level
C 2	Demonstrate a comprehensive understanding of techniques applicable to their own research or advanced scholarship
C 3	Demonstrate initiative and personal responsibility

**How will you learn?**

The curriculum and its assessment quality standards will be monitored to ensure students achieve the appropriate standard required for a QMUL award. For distance learning, students will have comprehensive study materials provided online, but will require access to the appropriate software to view lectures through the internet. With the recent infrastructure investment by QMUL, the new technologies (e.g. QMPlus, Eco360) which allows them to discuss and exchange ideas, share knowledge as well as to review the lecture sessions in their own time and at their own pace.

**How will you be assessed?**

For the taught modules there will be an end of module assessment in the form of a written essay and an end of course exam.

Module WHR7206 will have a practical assignment in addition to the above. The end of course exam will take place in the 3rd semester and will cover all taught modules.

### How is the programme structured?

Please specify the structure of the programme diets for all variants of the programme (e.g. full-time, part-time - if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

The modular nature of the course is designed to fit in with the needs of those students who are in full time employment.

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WHR7202- Omics Techniques and the their application to Genomic Medicine

WHR7206- Bioinformatics, Interpretation and data quality assurance in Genomic analysis

And additional two modules of their choice from the following modules:

Either any remaining core modules (listed above) or:

WHR7203- Genomics of Common and Rare diseases

WHR7204- Molecular Pathology of Cancer and application in cancer diagnosis, screening, and treatment

WHR7205- Pharmacogenomics and Stratified Healthcare

WHR7211- Application of Genomics in Infectious Disease

WHR7207- Ethical, Legal and Social Issues in Genomic Medicine

WHR7208- Genetics and Genomics Counseling

WHR7209- Economic Models and Human Genomics

WHR7210- Expanding the content of the MSc in Genomic Medicine with workplace based Modules

#### Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Fundamentals in Human Genetics and Genomics	WHR7201	15	7	Core	1	Semesters 1-3
Omics Techniques and the their application to Genomic Medicine	WHR7202	15	7	Core	1	Semesters 1-3
Bioinformatics, Interpretation and data quality assurance in Genomic analysis	WHR7206	15	7	Core	1	Semesters 1-3
Genomics of common and rare inherited diseases (elective-core )	WHR7203	15	7	Elective	1	Semesters 1-3
Molecular Pathology of Cancer and application in cancer diagnosis, screening, and treatment	WHR7204	15	7	Elective	1	Semesters 1-3
Pharmacogenomics and Stratified Healthcare	WHR7205	15	7	Elective	1	Semesters 1-3
Ethical, Legal and Social Issues in Genomic Medicine	WHR7207	15	7	Elective	1	Semesters 1-3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Genetics and Genomics Counseling	WHR7208	15	7	Elective	1	Semesters 1-3
Economic Models and Human Genomics	WHR7209	15	7	Elective	1	Semesters 1-3
Expanding the content of the MSc in Genomic Medicine with workplace based Modules	WHR7210	15	7	Elective	1	Semesters 1-3
Application of Genomics in Infectious Disease	WHR7211	15	7	Elective	1	Semesters 1-3

### What are the entry requirements?

Candidates should have a degree or equivalent in an appropriate subject from an approved educational establishment/ professional qualifications or experience sufficient to satisfy the Head of Division and Course Director of the applicant's fitness to pursue the course of study. Entry level guidelines for English Language: an IELTS score of  $\geq 6.5$  is required for these courses with the score of 6 in writing.

### How will the quality of the programme be managed and enhanced? How do we listen to and act on your feedback?

There will be regular feedback sessions and online discussion board review between students and staff to address issues arising from delivering the programme.

The Staff-Student Liaison Committee provides a formal means of communication and discussion between schools/institutes and its students. The committee consists of student representatives from each year in the school/institute together with appropriate representation from staff within the school/institute. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Staff-Student Liaison Committees meet regularly throughout the year. We anticipate that the distance learning students will engage in this process through an on-line mediated discussion forum, i.e. an interactive message board where students can discuss topics and formulate views, and by direct email.

Each school/institute operates a Learning and Teaching Committee, or equivalent, which advises the School/Institute Director of Taught Programmes on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Distance learning student views will be incorporated in the committee's work through student surveys.

All schools/institutes operate an Annual Programme Review of their taught postgraduate provision. APR is a continuous process of reflection and action planning which is owned by those responsible for programme delivery; the main document of reference for this process is the Taught Programmes Action Plan (TPAP) which is the summary of the school/institute's work throughout the year to monitor academic standards and to improve the student experience. Students' views are considered in this process through analysis of the NSS and module evaluations.

Distance-learning students are entitled to the same pastoral support as students on-site but via electronic / telephone means. Pastoral support can be accessed via the Programme Organiser and Course administrator within the Institute.

### What academic support is available?

Participants will get access to extensive online induction material. There will be an induction day to review the programme

details and expectations. Mechanisms for student support (academic, technical, administrative and pastoral) are all in place and information about this will be available online as part of the induction material.  
The personalised approach to academic support is anticipated. The students will have academic team including the Programme Director as personal tutors ensuring consistency of student experience and a commitment to personal contact.

### Programme-specific rules and facts

### How inclusive is the programme for all students, including those with disabilities?

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites.

Students can access advice, guidance and support in the following areas:

- Finding out if you have a specific learning difficulty like dyslexia
- Applying for funding through the Disabled Students' Allowance (DSA)
- Arranging DSA assessments of need
- Special arrangements in examinations
- Accessing loaned equipment (e.g. digital recorders)
- Specialist one-to-one "study skills" tuition
- Ensuring access to course materials in alternative formats (e.g. Braille)
- Providing educational support workers (e.g. note-takers, readers, library assistants)
- Mentoring support for students with mental health issues and conditions on the autistic spectrum.

### Links with employers, placement opportunities and transferable skills

## Programme Specification Approval

**Person completing Programme Specification:**

Dr Nina Ravic

**Person responsible for management of programme:**

Professor Deloukas and Professor Sir Caulfield

**Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee:**

19/05/2023 (For 2023/24)

Programme Title: PGCert Genomic Medicine

**Date Programme Specification approved by Taught Programmes Board:**