Appendix A

A	NATURE OF THE AWARD	
1	Programme Title	Genomic Medicine/Healthcare
2	Final award	MSc
3	Intermediate awards	PGDip in Genomic Medicine PGCert in Genomic Medicine (Standard pathway) PGCert in Genomic Medicine (Medical pathway) PGCert in Genomic Medicine (Bioinformatics pathway) PGCert in Genomic Healthcare
4	Awarding institution/body	St George's Hospital Medical School, a constituent college of the University of London
5	Teaching institution	Jointly delivered by St George's, University of London and King's College London
6	Programme accredited by	N/A
7	UCAS/JACS code	N/A
8	QAA benchmark statements	N/A
9	Date specification produced	May 2015, Updated January 2017, Updated May 2018, Updated March 2020, Updated April 2022

B	FEATURES OF THE PROGRAMME	
1	Mode of study	Full-time; Part-time
2	Usual length of programme	1 year full-time; 2 year part-time
3	Other features of the programme	Healthcare professionals working at NHS are eligible for funding from Health Education England for up to four taught modules per year.

C	EDUCATIONAL AIMS OF THE PROGRAMME
This course follows a curriculum designed by Health Education England and is aimed at healthcare professionals and other students with an interest in genomic medicine. The main aims are to develop graduates within the medical workforce with the knowledge of the genome and skills to interpret genomic data, and in particular to enhance the ability to integrate genome sequencing into mainstream practice for the diagnosis and management of rare and complex disease, in oncology and within infectious disease management.	

D	LEARNING OUTCOMES OF THE PROGRAMME	
	Advanced knowledge and understanding of:	*Related teaching and learning methods and strategies*
1	The human genome structure, regulation and variation	Lectures

2	Modes of disease inheritance and appropriate methodology to identify genetic causality	Practical classes Workshops Small-group teaching Research project *Assessment* In-course assessments: Literature review, essays, reports. Examinations: MCQ/SBA and SAQ.
3	Role of omics techniques in modern medicine	
4	The 100,000 Genome Project	
5	Current legislative and ethical framework within which genomics operates	
6	Role of pharmacogenomics	
7	Role of genomic technologies in cancer diagnostics and patient treatment	
8	Application of genomic technologies in monitoring and diagnosis of infectious disease	
9	Challenges of data handling and interpretation in modern genomic era	

	Cognitive skills: the ability to	*Related teaching and learning methods and strategies*
1	Critically evaluate scientific and clinical research	Lectures Small group teaching *Assessment* In-course assessment, written examination and research project
2	Interpret genomic information for use in diagnosis and treatment	
3	Promote innovative solutions to problems, by forming research questions and appropriate strategies	
4	Plan and execute a research project	
5	Analyse and interpret data	

	Practical skills: the ability to	*Related teaching and learning methods and strategies*
1	Select software for library searches and information retrieval	Lectures Small group teaching, practical workshops *Assessment* In-course assessment including communications role play; examinations including Next Generation Sequencing pipeline design and analysis and patient result written letter; and research project
2	Give oral presentations of scientific experiments/case reports or overviews of a detailed scientific topic	
3	Interact with e-learning tools	
4	Write clearly and concisely – e.g., scientific reports, reviews of scientific literature and examination essays	

5	Interpret data as a basis for scientific and clinical research	
6	Plan and carry out an individual research project, understand the legal and ethical frameworks, evaluate research outcomes, and relate them to the existing knowledge base	
7	Communicate genomic information to patients and colleagues	
8	Select data sources and computational tools for analysing genomic data	

	Transferable skills: the ability to	*Related teaching and learning methods and strategies*
1	Structure and communicate ideas both orally and in writing	Small-group teaching *Assessment* In-course assessment, written examination and research project
2	Assess evidence critically	
3	Find and use information technology	
4	Set independent learning objectives beyond those established in the teaching room	

E Programme structure and features

Modules will be jointly delivered by St. George's University of London (SGUL) and King's College London (KCL), with module leads and deputy leads normally appointed from both institutions. Students will receive teaching on site at both SGUL and KCL (Guy's campus).

Core mandatory modules (15 credits):
- Fundamental of human genetics and genomics (SGUL)
- Omics techniques and technologies; their application to genomic medicine (KCL)
- Bioinformatics, interpretation and data quality assurance in genome analysis (KCL)

Core non-mandatory modules (15 credits)
- Genomics of common and rare inherited diseases (SGUL)
- Molecular pathology of cancer and application in cancer diagnosis, screening and treatment (KCL)
- Pharmacogenomics and stratified healthcare (KCL)
- Application of genomics in infectious disease (SGUL)

Option modules (15 credits):
- Ethical, legal and social issues in applied genomics (SGUL)
- An introduction to counselling skills used in genomics (SGUL)
- Cardiovascular genetics and genomics (SGUL)
- Advanced bioinformatics (KCL)

MSc

Students will complete all core mandatory modules and at least 3 of the 4 core non-mandatory modules. Students may choose to complete either a 30 or 60 credit Research Project. Students undertake sufficient option modules to attain 180 credits. Full-time MSc will

normally be completed over 1 year, part-time over 2 years.

PGDip
Students are required to complete 8 taught modules (120 credits). Two packages of modules are available to PGDip students. Full-time PGDip will normally be completed over 1 year, part-time over 2 years.

PGCert Genomic Medicine
Students are required to complete 4 taught modules (60 credits). Three packages of modules are available to PGCert students. The PGCert will normally be completed over 1 year.

Students will be permitted to upgrade from PGCert to PGDip, or PGDip to MSc, providing they have successfully completed all modules to date.

PGCert Genomic Healthcare
Students are required to complete 4 specific taught modules (60 credits). The PGCert will normally be completed over 1 year.

Recognition of Prior Learning (RPL)
Transfer of relevant level 7 credits will be allowed as follows: maximum 90 credits may be transferred for the MSc award, maximum 60 credits for the PGDip award, and a maximum 30 credits for the PGCert. Credit will not be permitted to be transferred for the research project. Students will still be subject to all our standard programme regulations.

F General teaching and learning strategies

Students are expected to be of graduate standard when entering the programme and to utilise their undergraduate expertise and experience. A wide range of teaching and learning strategies are used in the delivery of the MSc Genomic Medicine course. The course is designed to encourage students to progress towards greater self-direction; students are encouraged to develop insight into their own learning styles and become responsible for their own learning and professional development. The combination of strategies enables students to develop an investigative, independent and individualised approach to learning and to undertake an extended research project at Level 7.

The course is designed to support students in accommodating their studies around their existing work commitments. To allow greater flexibility a technology-rich model is used to deliver a significant proportion of learning materials online and provide resources to facilitate self-directed learning and reflective practice. Online provision also facilitates the delivery of the module content as standalone modules or a part-time course.

On-site learning sessions will also be provided to allow students to benefit from direct contact with lecturers and other learners and to facilitate contact with patients. On-site sessions are delivered as 4 or 5 days spread across one of two weeks per module to allow for balance with work. Face-to-face sessions will be provided as lectures, tutor-led or student-led seminars and workshops, and case or scenario-based learning sessions. They will be recorded and uploaded to our virtual learning platform afterwards with the exemption of those whose interactive nature does not make it possible.

G Assessment

Assessments are designed to be aligned to specific module learning outcomes and the overall course aims. They include a range of different assessment types reflecting students preference and allowing strengths in different assessment methods to come to the fore, so as not to advantage or disadvantage particular students. Moreover, all our summative

assessments run online.

Formative feedback from module leads and lecturers will be provided to assess and advise students on their progress and help students to reflect on their learning and prepare for summative assessment. Formative quizzes will be used to enable students to test their knowledge.

Summative assessment methods will include:

- Formal written exams can contain Multiple Choice Questions (MCQs), Single Best Answer Questions (SBAs), Short Answer Questions (SAQs) and essays.
- Literature review: summarising topics, prevailing theories, hypotheses and work of key writers
- Essays: to develop argument or elaborate on research information to provide a review of a topic. Essays may be time-limited under examination conditions
- Reports, posters, presentations: to analyse and evaluate information and appropriately present and explain conclusions to others.
- Data analysis: to use the correct analytical approaches to handle and interpret data and to present the results in a report.
- Patient communication: to discuss genetic testing with patients, including the implications for the patient and their family and consent issues and to write a result letter.
- Research project: design and implement a research project under supervision, including the obtaining, analysis and discussion of data, adhering to appropriate ethical principles and approvals.

H Support for students and their learning

Course Director, Deputy Director and the course team: The Course Director and Deputy Director manage requests for extensions, mitigating circumstances considerations, and interruption of studies. Academic support will be provided by module leaders, and (for students registered for the MSc) the research project supervisor, and all the course team members are able to direct students to sources of further academic help and pastoral support.

Personal Tutor: At the beginning of the academic year each student will be allocated a Personal Tutor who will provide additional academic and pastoral support to help them achieve their academic potential. Personal tutors meet regularly with their students, mainly to provide regular feedback and discussion of progress, but sometimes also to advise on sorting out academic or personal difficulties.

Student peer support: Peer-to-peer student learning is encouraged within the structure of the course. Group work and other class and online activities will provide opportunities for students to share knowledge and experiences and provide a platform to offer each other support and advice.

SGUL Support Services: A comprehensive range of support is provided to all SGUL students, including the confidential and independent Student Counselling Service, the multi-faith Chaplaincy, advice on financial issues through the Registry, the Occupational Health service, the Careers Advisor, the Disabilities Advisor, the International Students Advisor, and the Students' Union. Two members of academic staff are employed specifically to provide study skills support and English language support, respectively. Students also have on and off-site access to library services and IT facilities, with access to a dedicated librarian for the course who can facilitate additional one-to-one or group study support sessions if required.

The Student Handbook will be available to students and staff at the start of the course and contains information on the full range of student support offered.

SGUL Graduate School: The SGUL Graduate School provides students with a space to meet and the opportunity to mix with postgraduate students from other courses, and to broaden their social and academic support network.

Resources
In addition to its staff resources, SGUL has a wealth of teaching and research laboratories, an extensive computer network, a large library and well-equipped computer classroom, specialized workshops and efficient academic service facilities. Students have access to a substantial collection of web-based learning resources. This incorporates web links to specific useful sites, as well as key learning topic materials developed by SGUL staff to support student learning.

The library holds a specialist medicine and health sciences collection of over 40,000 books, and audio-visual items, subscribes to over 10,000 print and electronic journals, and provides more than 250 reader seats (divided into quiet study, silent study and group study areas).

The area has Wi-Fi throughout as well as some desks with fixed data points (ethernet cables to connect laptop directly to the network rather than using Wi-Fi). Power sockets are available at over 100 desks and a number of laptops are available for use.
Upon enrolment, students take part in an induction programme to help their orientation. This includes introductions to the programme, health and safety on campus, library and computing resources.

I Criteria for admissions

Standard programme entry requirements:
Applicants should normally have, or be expected to achieve, a minimum lower second-class honours degree (2:2) from a UK or Republic of Ireland University, in a subject which offers an appropriate grounding, e.g., science, healthcare or genetics. For healthcare graduates, a pass is required.

All applicants will be asked to outline their reasons for applying for the course in a brief personal statement on the application form. Applicants should provide two references, both dated within the last year, one of which should be a recent academic reference and the other a second academic reference or a professional/employer reference.

International applicants:
Equivalent international qualifications will also be accepted, and the equivalence of these qualifications will be checked using the UK NARIC website. International applicants must satisfy the requirements of the UK Visas and Immigration department in relation to St George's responsibilities as a Highly Trusted Sponsor for Tier 4 students.

Non-standard programme entry:
Alternative professional qualifications may be considered and applicants holding these qualifications are encouraged to apply. Non-standard candidates may be required to submit supplementary details (e.g., transcripts) and/or attend interviews or selection days.

Proficiency in English language:
Evidence of English language testing will be required from all applicants for whom English is not their first language and who have not previously undertaken studies in English. The required minimum level of proficiency for postgraduate study at SGUL is an IELTS overall

score of 7, no less than 7 in the written element and 6.5 in each of the remaining three sub-test components, or an equivalent test and scores as approved by SGUL. Evidence of proficiency must be dated within the last two years, and applicants who have taken the test more than twice in one year will not be considered.

Applications for stand-alone modules:
Applications for stand-alone modules will be subject to the same entry requirements as those described above. Applicants with non-standard qualifications will normally be encouraged to consider taking a stand-alone module prior to registering for a longer degree. The deadline for application will be one month before the start date of the module and suitable applicants would be admitted on a first-come first served basis until the maximum capacity for that module was reached.

J Career opportunities

HEE has developed the curriculum for the MSc Genomic Medicine with the intention of upskilling NHS staff so they can apply and understand the relevance of genomic medicine to their work. As such, the MSc Genomic Medicine can enhance the career opportunities of a wide range of NHS professionals. The MSc Genomic Medicine will also provide state of the art knowledge to non-NHS employees, providing training of relevance to careers in the NHS, the pharmaceutical industry and bioinformatics, and academia (e.g., PhD).

K Methods for evaluating and improving the quality and standards of teaching and learning

A range of methods are employed:

- The Course Committee meetings have standing agenda items on course progress where student representatives can raise any issues.
- Reports of Student Evaluation Questionnaires such as SOLTS and PTES are reviewed by the Course Committee and reflected and discussed in the Annual Programme Monitoring Report (APMR).
- External Examiners' reports are reviewed by the Course Committee and Board of Examiners. Points requiring action are sent to the relevant members of academic or administrative or the Course Committee.
- Taught Postgraduate Courses Committee (TPCC) is responsible for quality monitoring of all postgraduate programmes. The Committee receives the minutes of Course Committee meetings, and the Annual Programme Monitoring Report. There is robust debate at TPCC meetings, attended by course directors of all postgraduate courses, where good practice is shared and areas for improvement are reviewed.

Other methods

- Staff appraisal against St George's criteria
- Teaching skills courses for staff
- Review of research activities of teaching staff

L Regulation of assessment

The course complies with the General Regulations for Students and Programmes of Study as devised by St George's.

Examinations are regulated through:

- Scheme of Assessment, which is reviewed and revised as necessary every year
- The Board of Examiners, which meets at least twice annually, and identifies strengths and weakness of assessments
- External Examiner who reviews specific assignment and examination questions, a sample of student coursework and exam scripts, and all dissertations. The External

Examiner provides an annual report on practices and processes, which is considered at course committee.

M	Indicators of quality and standards

Internal review

- Monitoring and responding to student feedback
- Monitoring of course content
- Regular analysis of student performance in assessments
- Annual analysis of student progression and final degree outcomes
- Periodic review every 5 years
- External examiner reports
- Annual Programme Monitoring Report
- HEE reporting

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, course content, and the teaching, learning and assessment methods of each module can be found in the course handbooks and individual module guides.

Key sources of information are:
Course documents
Course Canvas pages
Student Handbook
The St George's prospectus
The St George's internet site (www.sgul.ac.uk)
General Regulations for students and programmes of study
QAA subject review reports