Programme Specification (UG)

Awarding body / institution: Queen Mary University of London
Teaching institution: Queen Mary University of London
Name of final award and programme title: BSc (Hons) Medical Genetics with Year Abroad
Name of interim award(s): 
Duration of study / period of registration: 4 years
QMUL programme code / UCAS code(s): C43Y
QAA Benchmark Group: 
FHEQ Level of Award: Level 6
Programme accredited by: 
Date Programme Specification approved: 
Responsible School / Institute: School of Biological & Chemical Sciences

Schools / Institutes which will also be involved in teaching part of the programme:
Barts and The London School of Medicine and Dentistry

Institution(s) other than QMUL that will provide some teaching for the programme: 

Programme outline

The rationale for the Medical Genetics programme is to provide training for students with an interest in medically orientated genetics. Genetics is at the heart of research into human diseases, because of its direct role in disease and because of the instruments used to study disease. Understanding in this area unifies areas across biology from genetics, molecular biology, physiology, statistics, biochemistry and population genetics, enabling transfer of knowledge between fields. The programme “Medical Genetics” has been designed to enable the students to find the value and importance of fundamental, yet targeted research in medicine. The students will be directed through essential courses available in SBCS enabling them to move easily between the disciplines. The knowledge and skills gained will enable students to take up a diverse range of post-graduate training programmes, and career routes in biology and medical research. The target population is students with a general interest in medicine, genetics, and in medical research.

Aims of the programme

To provide a general foundation in biological sciences with a significant and balanced input of medical genetics training. Compulsory modules direct the students towards the genetics and ecology of human disease. To provide an environment to develop transferable skills in public speaking, verbal reasoning, report writing and database mining.
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Furthermore to:

• Provide a rational, flexibly structured and coherent programme of study which is relevant to the needs of employers, facilitate the professional development of the student and lay the foundations for a successful career to the benefit of the economy and society;

• provide a sound knowledge base in the fields studied and develop key transferable skills in the areas of communication, numeracy, information technology, working with others, problem solving, time and task management;

• foster the development of an enquiring, open-minded and creative attitude, tempered with scientific discipline and social awareness, which encourages lifelong learning.

What will you be expected to achieve?

You will be expected to achieve the following learning outcomes:

QMUL Model

The QMUL Model is an innovative teaching and learning initiative that will broaden opportunities for Queen Mary undergraduates within and beyond higher education, supporting them to plan and manage their ongoing professional development. The Model is firmly grounded in the core QMUL values of respect for, and engagement with, the local area and communities, with a distinctive focus on enabling students to make a positive societal impact through leadership in their chosen field. The Model is organised around the key themes of:

• networking
• multi- and inter-disciplinarity
• international perspectives
• enterprising perspectives.

Students are required to study QMUL Model modules to the value of at least 10 credits at each year of undergraduate study. Model modules may be 5, 10 or 15 credits. Model modules are indicated within this programme specification.

In your first year of study, the Model module will be core or compulsory and will be situated within your home School or Institute. In subsequent years, students will be strongly encouraged to study at least one Model module beyond their home discipline(s), which could, for example, be in another School / Institute or area of QMUL or undertaken as a module outside of QMUL.

If Model module information is not provided on this programme specification for all subsequent years of study, this will be identified as your studies continue.

Where a Model module elective can be selected from an approved group of Model modules, no guarantee can be provided that your first choice of Model module will be available.
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Academic Content:

A1 key concepts in genetics and genetic diseases.
A2 evolutionary theory and how this is applied to the study and management of disease.
A3 how the molecular perspective understanding in medical genetics is derived from the disciplines of classical, chromosomal, population and molecular genetics.
A4 how evolutionary understanding is derived from studies from interaction between human populations, viruses and sexually transmitted diseases.

Disciplinary Skills - able to:

B1 Reason critically.
B2 Identify and formulate problems.
B3 Apply medical genetics knowledge and principles, in combination with problem-solving skills, in a wide range of theoretical and practical situations.
B4 Use advanced theories and concepts to explain/rationalize phenomena in medical genetics, and to investigate unfamiliar problems.
B5 Conduct practical work efficiently and with due regard for safety.
B6 Use a wide range of laboratory and analytical equipment, as well as computational tools and packages.
B7 Analyse and evaluate/interpret the results of controlled experiments
B8 Retrieve, filter and collate biological data from a variety of information sources.
B9 Prepare scientific/technical reports.
B10 Plan, undertake and report a bibliographically-based piece of research.

Attributes:

C1 Communicate effectively by written and/or verbal means.
C2 Capacity for independent learning, and to work independently.
C3 Able to participate constructively as a member of a group/team, with skills to influence, negotiate and lead.
C4 Assess the relevance, importance and reliability of the ideas of others and different sources of information.
C5 Competent in the use of computer-based technology, including the manipulation and analysis of quantitative data.
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C6 Awareness of the role and impact of science in society, including the global perspective.
C7 Use information for evidence-based decision-making and creative thinking.

QMUL Model Learning Outcomes - Level 4:

D1 Identify and discuss their own career aspirations or enterprise skills and knowledge and how they impact on others
D2 Identify and demonstrate the perspectives or problem solving techniques of different disciplines
D3 Consider the role of their discipline in diverse cultural and global contexts

QMUL Model Learning Outcomes - Level 5:

E1

QMUL Model Learning Outcomes - Level 6:

E1

QMUL Model Learning Outcomes - Level 7:

G1

How will you learn?

Acquisition of knowledge is achieved mainly through lectures and directed independent learning. Understanding is reinforced through a combination of tutorial workshops, problem classes and laboratory classes (depending upon the module concerned), including regular feedback on submitted work. Additional learning support is provided through Queen Mary’s online learning environment and the facilities of the QMUL Student PC Service.

Medical Genetics practical skills are developed in a progressive manner throughout the programme. In the lower levels attention is concentrated on the basic skills and safe working practice, while at higher levels more advanced techniques and non-prescribed exercises are introduced.
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Skill in the application of medical genetical theories and concepts is similarly built-up by a progression of graded problem classes. Other skills are not explicitly taught, but are nurtured through the provision of primers/guidance notes.

Transferable skills are developed in a contextual manner throughout the teaching and learning programme outlined. Specific skills may be developed further in particular modules (e.g. project modules), but this depends on the details of each individual’s programme of study.

How will you be assessed?

Testing of the knowledge base is generally through a combination of unseen written examinations and assessed coursework. The exact nature of the coursework varies from module to module and may include work in the form of laboratory experiment write-ups, essays and/or problem sheets. The coursework mark may also include a contribution from computer-based assessments and in-course tests. Specific modules (if taken) include assessed oral examinations, oral presentations and extended reports/dissertations.

How is the programme structured?

Please specify the full time and part time programme diets (if applicable). Please also outline the QMUL Model arrangements for each year of study. The description should be sufficiently detailed to fully define the structure of the diet.

Students are required to register for modules to a value of 120 credits in each academic year. These modules are chosen from those offered in the C431 programme diet, as detailed below.

In the first year, you will study 120 credits, comprising the following:
- 6 x 15 credit compulsory modules (totalling 90 credits, across Semesters A & B)
- 3 x 10 credit compulsory modules (totalling 30 credits, across Semesters A & B)

In the second year, you will study 120 credits, comprising the following:
- 3 x 15 credit compulsory modules, BIO211 Human Molecular Biology, BIO227 Human Genetic Disorders, and BIO221 Evolutionary Genetics (totalling 45 credits, Semester A)
- 2 x 15 credit compulsory modules, BIO241 Transmission Genetics, and BIO209 Research methods and communication (totalling 30 credits, Semester B)
- 2 x 15 credit elective modules from the discipline elective group (totalling 30 credits, across Semesters A & B)
- 1 x 15 credit elective module from the compulsory Model elective group (15 credits, Semester A)

In third year you will study 120 credits made up of BIO5500. The Study abroad year is pass/fail and students who don’t pass their year abroad will be transferred onto the standard programme.

In fourth year, you will study 120 credits comprising the following:
- 1 x 30 credit compulsory elective module from the Research Project group (30 credits, across Semesters A & B)
- 3 x 15 credit compulsory modules, BIO309 Research methods and communication II, BIO323 Human Genetics & Genomics, and BIO325 Population & Chromosome Genetics (totalling 45 credits, Semester A)
- 1 x 15 credit compulsory module, BIO327 Functional Genomics & Epigenetics (15 credits, Semester B)
- 2 x 15 credit elective modules from the discipline elective group (totalling 30 credits, across Semester A & B).

Choice between electives is generally unrestricted, but with the exceptions that:
- you must not register for more than 75 credits in total in any given semester
- you must check that you satisfy the prerequisites before registering for any elective module
- you must register for one elective in the Model electives group in the second year. Model electives offered in other academic
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disciplines are available subject to a satisfactory timetable.
- you must register for one of BIO600 or BIO603 in the final year.

### Academic Year of Study  FT - Year 1

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Module Code</th>
<th>Credits</th>
<th>Level</th>
<th>Module Selection Status</th>
<th>Academic Year of Study</th>
<th>Semester</th>
<th>QMUL Model</th>
</tr>
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<tbody>
<tr>
<td>Practical Molecular &amp; Cellular Biology</td>
<td>BIO192</td>
<td>10</td>
<td>4</td>
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<td>Cell Biology</td>
<td>BIO111</td>
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<tr>
<td>Evolution</td>
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<td>Molecular Genetics</td>
<td>BIO163</td>
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<td>Essential Skills for Biology &amp; Biochemistry</td>
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<td>Practical Biology</td>
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<td>Physiology</td>
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<td>Ecology</td>
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<td>Basic Biochemistry</td>
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<th>Academic Year of Study</th>
<th>Semester</th>
<th>QMUL Model</th>
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<tbody>
<tr>
<td>Evolutionary genetics</td>
<td>BIO221</td>
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<td>Human Molecular Biology</td>
<td>BMD211</td>
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<td>Human Genetic Disorders</td>
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<th>Module Title</th>
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<th>Academic Year of Study</th>
<th>Semester</th>
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<tr>
<td>Cell biology and developmental genetics</td>
<td>BIO213</td>
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<td>Comparative and Integrative Physiology</td>
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<td>Research methods and communication</td>
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<td>Transmision genetics</td>
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<td>Basic Immunology</td>
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<td>Metabolic pathways</td>
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<td>Microbial physiology &amp; growth</td>
<td>BIO231</td>
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<td>Introduction to Scientific Programming (15 credits)</td>
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<td>Health &amp; Wellbeing (15 credits)</td>
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<td>Philosophy of Business &amp; Science (15 credits)</td>
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<td>Grand Challenges in the Natural Sciences (15 credits)</td>
<td>SBC5211</td>
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<td>Engaging the Public in Science (15 credits)</td>
<td>SMD5251</td>
<td>15</td>
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<tr>
<td>External (pool) Model module electives, TBA</td>
<td>Various, TBA</td>
<td>15</td>
<td>5</td>
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### Academic Year of Study  FT - Year 4

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<th>Module Title</th>
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<th>Credits</th>
<th>Level</th>
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<th>Academic Year of Study</th>
<th>Semester</th>
<th>QMUL Model</th>
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<tbody>
<tr>
<td>Biological Science Research Project</td>
<td>BIO600</td>
<td>30</td>
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<td>Semesters 1 &amp; 2</td>
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<td>Project skills in the life sciences</td>
<td>BIO603</td>
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<td>Semesters 1 &amp; 2</td>
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<tr>
<th>Module Title</th>
<th>Module Code</th>
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<th>Level</th>
<th>Module Selection Status</th>
<th>Academic Year of Study</th>
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<tr>
<td>Research methods and communication II</td>
<td>BIO309</td>
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<td>6</td>
<td>Compulsory</td>
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<td>Semester 1</td>
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<td>Population &amp; chromosome genetics</td>
<td>BIO325</td>
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<td>Human Genetics &amp; Genomics</td>
<td>BIO323</td>
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<td>6</td>
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<td>Endocrine physiology &amp; biochemistry</td>
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<td>6</td>
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<td>Molecular basis of disease</td>
<td>BIO363</td>
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<td>Advanced Immunology</td>
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<tr>
<td>Functional Genomics &amp; Epigenetics</td>
<td>BIO327</td>
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<td>6</td>
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<td>Neuroscience: from molecules to behaviour</td>
<td>BIO333</td>
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<td>6</td>
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<td>Parasites &amp; infectious disease</td>
<td>BIO335</td>
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<td>6</td>
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<td>Reproductive &amp; Developmental Biology</td>
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<td>Cancer Biology</td>
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<td>Molecular Basis of Personalised Medicine</td>
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<td>6</td>
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<td>Semester 2</td>
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What are the entry requirements?
Candidates must be able to satisfy the general admissions requirements of the University and meet the requirements for this specific programme of study. This is usually achieved in one of the following ways (note - the entry-points tariff is subject to annual review):

For direct entry to the degree programme, candidates must usually possess ABB at A2 level including "A2" Biology, or equivalent qualifications.

or via

Admission to the QMUL Science and Engineering Foundation Programme (SEFP), and successful completion of the foundation year (defined by achievement of the minimum requirements for progression defined in the SEFP programme regulations, and the criteria specified in the SEFP Student Handbook for progression to this particular degree programme).

How will the quality of the programme be managed and enhanced?
Quality of the programme will be managed and enhanced through institutional and School level reviews. These will take the
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Form of the Annual Programme Review, Programme Teaching Groups, and Teaching and Learning Committee. Additionally, student feedback (via SSLC and Module Evaluations) will be considered when developing modules and programmes.

How do we listen to and act on your feedback?

The Student-Staff Liaison Committee (SSLC) provides a formal means of communication and discussion between the School and its students. The committee consists of student representatives from each year in the School, together with appropriate representation from staff within the School. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. The Student-Staff Liaison Committees meets regularly throughout the year.

The Teaching & Learning Committee advises the School's 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 proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in the committee’s work in a number of ways, such as through consideration of student surveys and input from the SSLC.

All schools/institutes operate an Annual Programme Review of their taught undergraduate and 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.

What academic support is available?

Each student is provided with a personal academic guidance tutor (or “advisor”) who is their main point of contact for advice regarding academic matters and for assistance with pastoral concerns, throughout their whole programme. Students can see their advisors in their office hours or arrange an appointment via email. Moreover, if and when advisors are unavailable or cannot help with a specific problem, the School has several Senior Advisors to assist with student concerns.

The School also operates a PASS programme for peer guidance.

Programme-specific rules and facts

Not applicable.

Specific support for disabled students

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.
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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

As a medical genetics graduate, you will be at the cutting edge of modern biology. Some students will enter frontline research through further training in Master's and PhD programmes. Others may put their skills to work in consulting, biomedical publishing, medical sales, or disease diagnosis and research, to name just a few options. The flourishing biotechnology industry, healthcare and forensic services also offer a variety of careers. Finally a good degree, together with a range of transferable skills, will make you attractive to a wide variety of employers seeking to recruit top-class graduates.

Programme Specification Approval

Person completing Programme Specification: Dr David Hone

Person responsible for management of programme: Dr David Hone

Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee: 24 Jan 2018

Date Programme Specification approved by Taught Programmes Board: }

Queen Mary
University of London