

Programme Title: BSc Genetics and 'with Year Abroad' extramural year variant



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) Genetics, BSc (Hons) Genetics with Year Abroad
Name of interim award(s):	CertHE, DipHE
Duration of study / period of registration:	3 year (4 years with year abroad)
QMUL programme code / UCAS code(s):	C400, C40Y
QAA Benchmark Group:	
FHEQ Level of Award :	Level 6
Programme accredited by:	
Date Programme Specification approved:	
Responsible School / Institute:	School of Biological & Behavioural Sciences

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

Barts and The London School of Medicine and Dentistry

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

Programme outline

This programme provides training in the field of genetics. The programme is designed to provide an in-depth understanding of how measurable attributes (phenotypes) arise from inherited DNA sequences. It studies the three major types of genetics (inheritance patterns, population genetics, and molecular genetics) and provides a detailed analysis of how these impact on our understanding of evolution in a wide variety of organisms with an introduction to key principles of protein structure and function, the chemical sciences, cell biology, genetics and microbiology. Emphasis is given to molecular concepts of complex biological systems.

Aims of the programme

This programme aims to provide a general foundation in biological sciences with a significant and balanced input of genetics training. Compulsory modules direct the students towards understanding of genetics in cell biology and development, evolutionary processes, speciation and genomics. It will also provide an environment to develop transferable skills in public speaking, verbal reasoning, report writing and database mining.

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:

Please note that the following information is only applicable to students who commenced their Level 4 studies in 2017/18, or 2018/19

In each year of undergraduate study, students are required to study modules to the value of at least 10 credits, which align to one or more of the following themes:

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

These modules will be identified through the Module Directory, and / or by your School or Institute as your studies progress.

Academic Content:	
A 1	Key concepts in genetics, development and evolution
A 2	Evolutionary theory and how this is applied to the speciation, biosystematics and development.
A 3	How an understanding of evolution can be derived from studies of interaction between populations, species and communities.
A 4	Understanding of evolutionary genetics from the molecular perspective, derived from the disciplines of classical, chromosomal, population and molecular genetics.

Disciplinary Skills - able to:	
B 1	Reason critically.
B 2	Apply biological and genetics knowledge and principles, in combination with problem-solving skills, in a wide range of theoretical and practical situations.
B 3	Use advanced theories and concepts to explain/rationalize phenomena in genetics, and to investigate unfamiliar problems.
B 4	Conduct practical work efficiently and with due regard for safety.
B 5	Use a wide range of laboratory and analytical equipment, as well as computational tools and packages.
B 6	Analyse and evaluate/interpret the results of controlled experiments
B 7	Retrieve, filter and collate genetics data from a variety of information sources.
B 8	Prepare scientific/technical reports.
B 9	Plan, undertake and report a bibliographically-based piece of research.
B 10	Identify and formulate problems.

Attributes:	
C 1	Communicate effectively by written and/or verbal means.
C 2	Capacity for independent learning, and to work independently.
C 3	Able to participate constructively as a member of a group/team, with skills to influence, negotiate and lead.
C 4	Assess the relevance, importance and reliability of the ideas of others and different sources of information.
C 5	Competent in the use of computer-based technology, including the manipulation and analysis of quantitative data.
C 6	Awareness of the role and impact of science in society, including the global perspective.
C 7	Use information for evidence-based decision-making and creative thinking.

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.

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 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.

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 C100/C10Y 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:

Compulsory modules (totalling 60 credits):

- BIO209 Research methods and communication (15 credits)
- BIO213 Cell Biology and Developmental Genetics (15 credits)
- BIO223 Genes and Bioinformatics (15 credits)
- BIO227 Human Genetic Disorders (15 credits)
- 4x15 credit elective modules from the discipline elective group (totalling 60 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

To be eligible for the award of BSc (Hons) Biology with year abroad, students must take SBC201 after the 2nd year and then return to QMUL the following year to complete the Year 3 diet in their 4th Year of study.

In third year, you will study 120 credits comprising the following:

- 1 x elective module from the Research Project group (totalling 30 credits, across Semesters A & B)
- BIO329 Professional Skills and Development for Biologists (15 credits)
- BIO327 Functional Genomics and Epigenetics (15 credits)
- BIO325 Population and Chromosome Genetics (15 credits)
- 3 x 15 credit elective modules from the discipline elective group (totalling 45 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

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Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Practical Molecular & Cellular Biology	BIO192	10	4	Compulsory	1	Semester 2
Cells	BMD116	15	4	Compulsory	1	Semester 1
Evolution	BIO113	15	4	Compulsory	1	Semester 1
Molecular Genetics	BIO163	15	4	Compulsory	1	Semester 1
Essential Skills for Biology	BIO100	10	4	Compulsory	1	Semesters 1 & 2
Practical Biology	BIO190	10	4	Compulsory	1	Semester 2
Physiology	BIO125	15	4	Compulsory	1	Semester 1
Ecology	BIO123	15	4	Compulsory	1	Semester 2
Basic Biochemistry	BIO161	15	4	Compulsory	1	Semester 2

Academic Year of Study FT - Year 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Compulsory modules:			5	Compulsory		
Research methods and communication	BIO209	15	5	Compulsory	2	Semester 1
Genes and Bioinformatics	BIO223	30	5	Compulsory	2	Semester 1
Cell Biology and Developmental Genetics	BIO213	15	5	Compulsory	2	Semester 2
Human Genetic Disorders	BIO227	15	5	Elective	2	Semester 1

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Remaining modules in the elective pool:		0	5	Elective	2	
Microbial physiology and growth	BIO231	15	5	Elective	2	Semester 2
Diversity of Life	BIO212	30	5	Elective	2	Semesters 1 & 2
Comparative and Integrative Physiology	BIO215	15	5	Elective	2	Semester 1
Membrane and cellular biochemistry	BIO263	15	5	Elective	2	Semester 2
Metabolic pathways	BIO265	15	5	Elective	2	Semester 2
Techniques for biological and chemical sciences	BIO269	15	5	Elective	2	Semester 1
Infectious Disease Biology	BIO214	15	5	Elective	2	Semester 1
Ecological Interactions I	BIO234	15	5	Elective	2	Semester 1

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
The following modules must be taken to qualify for the degree 'with a year abroad'			5	Core		
SBCS Study Abroad Year	SBC5000	120	5	Core	3	Semesters 1 & 2

Academic Year of Study FT - Year 3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Professional Skills and Development for Biologists	BIO329	15	6	Compulsory	3	Semester 1

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Biological Science Research Project (Project Elective)	BIO600	30	6	Elective	3	Semesters 1 & 2
Project skills in the life sciences (Project Elective)	BIO603	30	6	Elective	3	Semesters 1 & 2
Engaging the Public with Science (Project Elective)	BMD606	30	6	Elective	3	Semesters 1 & 2
Population and Chromosome Genetics	BIO325	15	6	Compulsory	3	Semester 1
Functional Genomics and Epigenetics	BIO327	15	6	Compulsory	3	Semester 2
Advanced Human Genetic Disorders	BIO324	15	6	Elective	3	Semester 2
Savannah Ecology and Conservation	BIO392	15	6	Elective	3	Semester 1
Neuroscience: from molecules to behaviour	BIO333	15	6	Elective	3	Semester 2
Mammals and evolution	BIO331	15	6	Elective	3	Semester 2
Reproductive and Developmental Biology	BIO337	15	6	Elective	3	Semester 2
Behavioural Ecology	BIO311	15	6	Elective	3	Semester 1
Coding Skills and Data Science	BIO319	15	6	Elective	3	Semester 2

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 a minimum of a grade B in 'A2' Biology, or equivalent qualifications. Chemistry (at A2 or AS-level) is desirable, but not essential.

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? How do we listen to and act on your feedback?

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.

What academic support is available?

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.

Programme-specific rules and facts

None

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.

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.

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Links with employers, placement opportunities and transferable skills

Half our graduates find work or further training in the life sciences including teaching, research or environmental monitoring and regulation, sales work and careers in the growing biotechnology industry. The remaining half move on to other jobs or further training but take transferable skills from a scientific education: numeracy, computer literacy, data handling and analysis, descriptive and critical writing, familiarity with biotechnology and scientific methods.

Recent graduate roles include:

laboratory technician,

data analyst,

public health officer,

market researcher.

NHS administrator,

medical representative,

environmental consultant.

Programme Specification Approval

Person completing Programme Specification:

Sally Faulkner

Person responsible for management of programme:

Sally Faulkner

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

6 Jan 2022

Date Programme Specification approved by Taught Programmes Board: