

Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and title:	MSc
Name of interim award(s):	PGCert
Duration of study / period of registration:	12 months
Queen Mary programme code(s):	B000
QAA Benchmark Group:	Biomedical Sciences
FHEQ Level of Award:	Level 7
Programme accredited by:	This is not a BPS accredited programme.
Date Programme Specification approved:	
Responsible School / Institute:	School of Biological and Behavioural Sciences

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

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

Programme outline

We are building knowledge and skills in molecular cell biology. We will provide cutting edge training in molecular biology, cell biology, biochemistry and structural biology. A major part of the MSc will be the research project which will develop research skills, communication, networking, and project management. This will build on the expertise available within the Biochemistry Department and Centre for Molecular Cell Biology at SBBS covering research areas such as chromosome biology, ageing biology, microbiology, and structural biology.

The programme provides a comprehensive preparation for students wishing to progress onto a research career (bridging the gap between the lecture-dominated programme of a typical undergraduate BSc degree and the research intensive PhD degree), but the qualification can also be a real asset for those wishing to pursue other careers in industry, or in education. Training is given in a wide range of techniques to enable candidates to build up a substantial portfolio of experimental skills and thereby tackle more extended research and development projects with increased confidence. This will be a great preparation for moving into industry, academia, and research & development.

The research project is the backbone of this programme. The length of the project (6-months) is designed to allow the students to have an opportunity to experience cutting-edge laboratory-based research and join the research community within SBBS. The research project is on a topic agreed in consultation with the programme coordinator, the project supervisor and the

student.

The practical work will generally provide training in a variety of specialised techniques appropriate to the chosen area of research and is carried out in the research laboratories, under the supervision of a member of academic staff.

Aims of the programme

The key aim of the programme is to equip students for a research career in molecular cell biology or a related discipline. The research project will give students the necessary skills and attributes of a research scientist and will be an excellent preparation for a PhD. The students will develop knowledge of the theoretical background of techniques and key concepts within an area of research that is of interest to the student and might support their research project.

The programme will:

- (i) provide a comprehensive preparation for students wishing to progress onto a research degree or into employment in a research-oriented environment, bridging the gap between the lecture-dominated programme of a typical undergraduate BSc degree and the research intensive PhD degree.
- (ii) 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.
- (iii) foster the development of an enquiring, open-minded and creative attitude, tempered with scientific discipline and social awareness, which encourages lifelong learning.

The students will:

- (i) plan and execute experiments, under the supervision of a principal investigator (PI) in a research environment.
- (ii) enhance their experimental, theoretical and analytical skills, and develop their ability to adapt and apply methodology to the solution of unfamiliar problems.
- (iii) develop their organisational and time-management skills, and their skills in the oral and written communication of research results and scientific concepts.

What will you be expected to achieve?

see Academic Content, Disciplinary Skills and Attributes below.

Academic Content:

A 1	Critical thinking
A 2	Selection of optimal methods to investigate molecular and cellular systems with the aim to solve issues associated with cellular homeostasis underpinning development, health, ageing and diseases across a range of organisms.
A 3	Interpretation of experimental and/or computational results.
A 4	Detailed knowledge and understanding of the essential facts, concepts, principles and theories in selected areas of advanced Molecular Cell Biology or closely-related fields, appropriate to the candidate's chosen area of specialisation.
A 5	Use advanced theories and concepts to interpret data and explain phenomena within Molecular Cell Biology.
A 6	Recording and interpretation of experimental and/or computational results.

Disciplinary Skills - able to:	
B 1	Plan, design and execute hypothesis-driven experiments to address research questions within Molecular Cell Biology.
B 2	Research independently in their chosen field of Molecular Cell Biology.
B 3	Use specialised research equipment (subject to training and health & safety procedures) and laboratory methods for the study, investigation, diagnosis and monitoring of cellular homeostasis in research environments.
B 4	Prepare scientific/technical reports and a scientific presentation.
B 5	Analyse and evaluate/interpret the results of hypothesis-driven experiments.
B 6	Integrate the knowledge of various key subjects to further the understanding of the study, investigation, diagnosis and monitoring of cellular homeostasis.
B 7	Appreciate the development and evaluation of new and current methods, and therapeutic intervention strategies.

Attributes:	
C 1	Evaluate and critically engage with existing knowledge and assessing the evidence base for scientific claims, by reading primary literature and commenting on the adequacy of the methods, data and interpretation.
C 2	Acquire new knowledge and extend understanding through investigation of unfamiliar problems.
C 3	Communicate results of hypothesis-driven research clearly by both written report and oral presentation.
C 4	Manage time, prioritise workloads and work to deadlines as a transferable key skill to help students with career goals and continuing education.
C 5	Work independently and build capacity for independent learning in a new range of ways.
C 6	Assess the relevance, importance and reliability of the ideas of others and successfully assess the quality of various information sources and use information constructively and critically.
C 7	Participate constructively as a member of a group/team, respect the opinions of others and act inclusively as responsible learners.
C 8	Identify information needs and devise strategies for the retrieval and selection of relevant information from a wide range of sources.

How will you learn?

Much of your learning will take place as part of your contribution to a research team.

Progress in the research project is monitored by the project supervisor through regular meetings as well as through inspection of the laboratory book. Students also need to submit dissertation drafts and will receive feedback on this.

The course will provide knowledge with a focus on practical experience of modern techniques in Molecular Cell Biology. These include: cell and molecular biology techniques; fluorescence imaging; protein production and analysis including structural biology; data processing; as well as other techniques used by molecular cell biologists.

Students are also strongly encouraged to attend the School seminar series and the Protein & Gene Club.

How will you be assessed?

The programme is designed to incorporate a broad range of assessments such as extended essays, MCQs and SAQs, poster and oral presentations, statistics assignments, lab reports, science communication pieces (reports on research techniques in the form of scientific research articles and an article on the SBBS BioWiki), a literature review and dissertation for the research project.

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.

This is a full time, 1 calendar year Masters programme starting in September.

Students require a total of 180 credits to graduate with a MSc degree.

The key focus of the MSc in Molecular Cell Biology is a Research Project (105 credits).

The students will conduct the project within one of the research labs in the Biochemistry department and Centre for Molecular Cell Biology at SBBS.

The research project will be in Semester 2 and 3 and end in August (6 months bench work + 1 month write-up).

Students are required to:

- (i) present the results of their research in a poster and orally at a seminar.
- (ii) submit a final dissertation consisting of a comprehensive description and discussion of the work undertaken during the research.

Additional compulsory modules:

Advanced Cell Biology Research Methods (30 credits)

Advanced Biochemical Research Methods (30 credits)

Literature Review for the Biomedical Sciences Research Project (15 credits).

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Advanced Cell Biology Research Methods	BIO760P	30	7	Compulsory	1	Semesters 1 & 2
Advanced Biochemical Research Methods	BIO491P	30	7	Compulsory	1	Semesters 1 & 2
Molecular Cell Biology Literature Review	BIO761P	15	7	Compulsory	1	Semester 1
Molecular Cell Biology Research Project	BIO762P	105	7	Core	1	Semesters 2 & 3

What are the entry requirements?

1. BSc in Molecular Biology; Cell Biology; Biochemistry; Biomedical Sciences or related. Important is a solid knowledge and understanding of molecular cell biology. Graduated with an Upper Second Class degree or equivalent.
2. An international qualification of similar standing to the above.
3. A lower qualification supplemented by additional experience in the field (e.g. with experience of working in an industrial laboratory with substantial training in molecular cell biology and biochemistry techniques).
In addition, international students must normally have an English language qualification at a level that meets the university guidelines for admission of international students (e.g. IELTS 6.5 or equivalent).

How will the quality of the programme be managed and enhanced? 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 programme and each year in the school, together with appropriate representation from staff within the School. It is designed to respond to the needs of students, and act as a forum for discussing programme and module developments. The Student-Staff Liaison Committee meet regularly throughout the year.

For this Masters degree the program organiser will seek verbal and written feedback on the program from students at the end of each semester from the whole student body. A student will be elected as part of the student staff liaison committee for the totality of the Masters programme. They will seek feedback from their peers and discuss it during the 2 dedicated meetings yearly.

The School operates an Education Committee, chaired by the School's Director of Taught Programmes, which oversees and advises on all matters relating to the delivery of taught programmes at school level. This includes monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment, before submission to Taught Programmes Board. Student views are incorporated in this Committee's work in a number of ways, such as through consideration of items referred by the SSLC and by consideration of student surveys, including module evaluation questionnaires.

All schools operate an Annual Programme Review of their taught undergraduate and postgraduate provision. Students' views are considered in this process through analysis of the results from the National Student Survey (NSS), module evaluations and other internal Queen Mary surveys.

What academic support is available?

Each student will have a primary project supervisor and a second academic advisor.

Other forms of academic support:

Induction Programme

This includes briefing from the Program Tutor on matters relating to the requirements of the programme and conduct of research in the laboratories as well as a series of briefings, demonstrations and visits aimed at ensuring that students are aware of the range of facilities for the support of study and research in the School.

Experimental Project Supervisor:

Students on this program have a research project supervisor who is a member of academic staff based in the School, and is the primary source of guidance on all matters relating to the experimental project component of the degree program.

Program Tutor:

Available for consultation by students on this program on any matter that relates to or impacts upon their studies.

Director of Teaching and Learning (Postgraduate):

Available to discuss any issues related to the program which cannot be resolved by the the program tutor.

Access to teaching staff:

On an individual basis, for matters relating to individual academic courses, or to deal with specific academic problems.

Queen Mary Student Guide and a range of other on-line documentation, published by the College Registry.

Programme Title: MSc in Molecular Cell Biology

Masters program details will be available on QMplus.

Extensive Library and IT facilities:

This includes the main library, a subject librarian, the Student PC Service and the Computing Services Help Desk.

IT Training Short Courses:

A range of short courses covering common software applications, operated by Computing Services.

On-line module documentation on QMplus.

Support classes (mathematics) and drop-in sessions (chemistry, biology, physics and mathematics) operated by the Learning Development Unit (LDU).

English Language & Study Skills Programme:

This includes pre-sessional and in-sessional classes in English language training for international students, and in-sessional Study Skills programme.

Staff-Student Liaison Committee(s):

For discussion of, and feedback on, all matters relating to academic programmes and departmental teaching activities.

Other support services/development opportunities:

SBBS Student Support Officers are available for meetings via an online booking system.

Advice & Counselling Service (for general advice, welfare information and counselling service).

College Residences Office (for support in finding accommodation).

Learning Support Service for Students with Disabilities/Learning Difficulties.

Language Learning Unit (for introductory courses in various modern European languages).

Student Support Centre of the Queen Mary Student Union.

Careers Service.

Programme-specific rules and facts

None

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

This programme provides a comprehensive preparation for students wishing to progress onto a research degree, bridging the gap between the lecture-dominated programme of a typical undergraduate BSc degree and the research intensive PhD degree. Graduates often proceed on to a PhD programme, although the Masters qualification can also be a real asset for careers in teaching or industry.

Graduates of Molecular Cell Biology degree courses are generally recognised by employers as having good technical and transferable skills: including skills in literacy, numeracy, application of logic, problem solving, communication, IT and computation, independent and team working, and time management.

Opportunities for employment outside the field of Molecular Cell Biology would include careers in the following areas: finance; commerce; civil service; law; journalism; publishing; healthcare; technical sales; information technology.

Programme Specification Approval

Person completing Programme Specification:

Christoph Engl

Person responsible for management of programme:

Christoph Engl

Date Programme Specification produced / amended by School / Institute Education Committee:

22 Nov 2023

Date Programme Specification approved by Taught Programmes Board: