

## 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:	MSc Biomedical Sciences
Name of interim award(s):	PGCert, PGDip
Duration of study / period of registration:	12 months
Queen Mary programme code(s):	C150
QAA Benchmark Group:	Biomedical Sciences
FHEQ Level of Award:	Level 7
Programme accredited by:	N/A
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:

Barts Cancer Institute

Barts and The London School of Medicine and Dentistry

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

### Programme outline

We are building knowledge and skills in biomedical sciences and precision medicine. We will provide cutting edge training in cell biology, structural medicine, and precision medicine. 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 at SBCS and the Barts Cancer Institute (and likely other institutes) at SMD covering research areas such as chromosome biology, ageing biology, microbiology, structural biology and cancer 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 the MSc. The length of the project (January-August) is designed to allow the students to have an opportunity to experience cutting-edge laboratory-based research and join the research community within SBCS. The research project is on a topic agreed in consultation with the MSc 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 biomedical research 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 or to enter the research industry. 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 research degrees.
- (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 system with the aim to solve issues associated with biomedical sciences, human health and diseases.
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 Biomedical Sciences 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 biomedical phenomena.

A6	Recording and interpretation of experimental and/or computational results.
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Disciplinary Skills - able to:	
B1	Plan, design and execute hypothesis-driven experiments to address research questions within biomedical sciences, human health and diseases.
B2	Make a significant contribution to a research project in the chosen field of Biomedical Sciences.
B3	Use specialised research equipment (subject to training and health & safety procedures) and laboratory methods for the study, investigation, diagnosis and monitoring of human health and disease in clinical and research environments.
B4	Prepare scientific/technical reports and a scientific presentation.
B5	Analyse and evaluate/interpret the results of hypothesis-driven experiments.
B6	Integrate the knowledge of various key subjects to further the understanding of the study, investigation, diagnosis and monitoring of human health and disease.
B7	Appreciate the development and evaluation of new and current methods, and therapeutic intervention strategies.

Attributes:	
C1	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.
C2	Acquire new knowledge and extend understanding through investigation of unfamiliar problems.
C3	Communicate results of hypothesis-driven research clearly by both written report and oral presentation.
C4	Manage time, prioritise workloads and work to deadlines as a transferable key skill to help students with career goals and continuing education.
C5	Work independently and build capacity for independent learning in a new range of ways.
C6	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.
C7	Participate constructively as a member of a group/team, respect the opinions of others and act inclusively as responsible learners.
C8	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.

It will provide knowledge with a focus on practical experience of modern techniques in the Biomedical Sciences. 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 biomedical scientists.

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 SBCS BioWiki), a literature review and dissertation for the research project.

The pass mark for all modules is 50%.

#### Resits:

As outlined in the general regulations for non-modular MSc degree programmes, any candidate that fails one or more elements may resit those elements on one further occasion while being granted exemption from repeating elements which they have already passed. The timetabling of any re-assessment will be at the discretion of the School.

The following policies with regard to resits apply:

- (i) The maximum mark that may be awarded for a resit is 50%.
  - (ii) Resits must be undertaken at the first opportunity; any candidate failing to register or turn-up for such a resit will be deemed to have failed and a mark of OF recorded (unless there are appropriate extenuating circumstances).
- A resit of the research project dissertation is generally understood to mean a resubmission of this dissertation. Only in exceptional circumstance will a candidate be permitted to complete further experimental work prior to resubmission, and in this instance a further tuition fee may be imposed.

### 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 MSc starting in September.

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

The key focus of the MSc is a Biomedical Sciences Experimental Project (105 credits) and Literature Review (15 credits).

The students will conduct the project within one of the research labs in the Biochemistry department at SBCS or the Barts Cancer Institute (and likely other institutes) at SMD.

The project will start in January and end in August (6 months bench work + 1 month write-up).

After completion of the bench work, students are required to:

- (i) present the results of their project at a seminar (10 min + 5 min questions)
- (ii) submit a dissertation consisting of a comprehensive description and discussion of the work undertaken during the project.

#### Additional compulsory modules:

Research Lab Skills (taught by Barts Cancer Institute) (15 credits)

Research Methods (taught by Barts Cancer Institute) (15 credits)

Advanced Methods in Biomedical Sciences (taught by Biochemistry department) (30 credits)

Literature Review of the research project (taught by Biochemistry department, Barts Cancer Institute and likely other SMD institutes)(15 credits).

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Research Methods	CANM937	15	7	Compulsory	1	Semester 1
Research Lab Skills	CANM938	15	7	Compulsory	1	Semester 2
Advanced Biochemical Research Methods	BIO491P	30	7	Compulsory	1	Semesters 1 & 2
MSc Biomedical Sciences Literature Review	BMD701P	15	7	Compulsory	1	Semester 1
MSc Biomedical Sciences Experimental Project	BMD700P	105	7	Core	1	Semesters 2 & 3

### What are the entry requirements?

1. BSc in Biomedical Sciences; Biochemistry or related. 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).

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)

### 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 MSc 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 MSc program. They will seek feedback from their peers and discuss it during the 2 dedicated meetings yearly. The School operates a Teaching and Learning Committee, chaired by the School's Director of Education which oversees and advises on all matters relating to the delivery of taught programs at school level. This includes monitoring the application of relevant QM policies and reviewing all proposals for module and program approval and amendment, before submission to Taught Programs 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 Program Review of their taught undergraduate and postgraduate provision. Students' views are considered in this process through analysis of the results from the Postgraduate Taught Experience Survey (PTES), 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

## Programme Title: MSc Biomedical Sciences

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.

### MSc Biomedical Sciences 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.

MSc 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.

upport 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

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### 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 MSc qualification can also be a real asset for careers in teaching or industry.

Graduates of Biomedical Sciences 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 Biomedical Sciences would include careers in the following areas: finance; commerce; civil service; law; journalism; publishing; healthcare; technical sales; information technology.

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## Programme Specification Approval

**Person completing Programme Specification:**

Christoph Engl
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**Person responsible for management of programme:**

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

16 Apr 2021
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**Date Programme Specification approved by Taught Programmes Board:**

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