

Programme Specification

Awarding Body/Institution	Queen Mary University of London
Teaching Institution	Queen Mary University of London
Name of Final Award and Programme Title	MSc FT Cancer and Molecular and Cellular Biology (A3P1) MSc PT Cancer and Molecular and Cellular Biology (A3P2) MSc DL FT Cancer and Molecular and Cellular Biology (A3P3) MSc DL PT Cancer and Molecular and Cellular Biology (A3P4) PGDip FT Cancer and Molecular and Cellular Biology (A4P1) PGDip PT Cancer and Molecular and Cellular Biology (A4P2) PGDip DL FT Cancer and Molecular and Cellular Biology (A4P3) PGDip DL PT Cancer and Molecular and Cellular Biology (A4P4)
Name of Interim Award(s)	PGDip/PGCert
Duration of Study / Period of Registration	1 year full time, 2 years part time
QM Programme Code / UCAS Code(s)	A3P1,A3P2,A3P3,A3P4,A4P1,A4P2,A4P3,A4P4
QAA Benchmark Group	n/a
FHEQ Level of Award	Level 7
Programme Accredited by	n/a
Date Programme Specification Approved	August 2015
Responsible School / Institute	Barts Cancer Institute

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

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Institution(s) other than Queen Mary that will provide some teaching for the programme

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Programme Outline

General:

This programme is provided by the Barts Cancer Institute (BCI) within Barts and the London School of Medicine.

The Barts Cancer Institute is a Cancer Research UK Centre of Excellence, which forms part of a national framework to deliver world-leading research, improved patient care and greater public engagement.

Cancer is the cause of over 25% of all deaths in the UK. Despite major advances in treatment over the last 25 years, over half of the 270,000 new cancer cases registered in the UK each year will go on to die of their disease. New treatment options are clearly

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required, a process that will require staff at all levels of the development process to be appropriately trained and skilled in cancer therapeutics and new treatment development.

This course is designed to give you a detailed and thorough understanding of molecular and cell biology based on knowledge of cancer biology, pathology, drug development and research and laboratory methodologies and techniques.

The laboratory-based projects forms a key component of the MSc programme, where students will be fully integrated into one of the Institute's 6 research centres.

This will provide you with a good grounding in the use and evaluation of cancer therapies and lab techniques which will enhance your career prospects in many areas of early phase clinical trials and clinical drug development in the cancer setting. It will also provide proven theoretical and practical skills suitable for entry to a PhD degree course.

This programme is offered in the following modes of study:

- Onsite - 1 year full time
- Onsite - 2 year part time

Delivered onsite through lectures, seminars and practicals

- Distance Learning - 1 year full time
- Distance Learning - 2 year part time

Delivered through our virtual learning platform using lecture capture videos and interactive skype sessions.

This programme is offered the following awards

- MSc award: 180 credits consisting of 120 credits of taught units and a 60 credit Dissertation

All teaching is delivered by research active scientists and clinicians.

Aims of the Programme

This programme aims to provide students with a clear understanding of the molecular and cellular biology fundamental to cancer biology and cancer research.

Students will learn how research in this area has advanced the treatment and diagnoses of cancer, and gain knowledge of how new therapies are developed, evaluated and implemented.

This will be underpinned by a thorough knowledge of research methodologies and laboratory techniques.

The laboratory based research project is an integral component of the course, which will provide students with valuable experience of the research process, including preparation of a thesis, thus forming a solid foundation upon which a future career in scientific research can be built.

What Will You Be Expected to Achieve?

On completion of the course students will:

- Demonstrate a core understanding of molecular and cellular biology.
- Have an in-depth knowledge of the principles and applications of molecular technologies as applied to human disease.
- Be proficient in experimental design, bioinformatics, data mining and interpretation.
- Demonstrate skills in oral and written presentation and in critical review of the literature.
- Contribute to the research process through experience of a laboratory project placement.
- Understand the ethical framework of the research process.

Academic Content:

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A 1	The student will be able to explain how and why molecular and cellular biology are relevant to cancer progression, detection and treatment.
A 2	They will have a thorough understanding of the mechanisms involved and be able to synthesise this knowledge to show how our improved understanding has facilitated the development of more targeted therapies.
A 3	They will be able to explain the principles and practice of drug development at all stages of the development process
A 4	Alongside cytotoxic and targeted therapies, the student will be able to evaluate and criticise different biological therapies for cancer and explain how the science is translated into clinical trials.
A 5	The student will be able to explain how molecular diagnosis is used in the detection and management of diseases

Disciplinary Skills - able to:	
B 1	By the end of this programme, the student will be able to identify and apply the most appropriate research techniques to gather, record, and critically appraise research data.
B 2	The student will be able to present, explain and defend their research in a concise manner.
B 3	The student will be able to design, plan and implement a research project, which will show originality in the application of knowledge, and will utilize a range of research and laboratory techniques.

Attributes:	
C 1	Clarity of communication - By the end of the programme the student will be able to communicate their research and knowledge to different audiences through the use of posters, oral presentations, lab write ups and lab meetings.
C 2	Global perspective - The student will be able to work as part of a research-active group, and interact with others in a professional laboratory research environment.
C 3	Research capacity - The student will be able to combine their theoretical knowledge and practical skills to investigate a research problem and to critically appraise the results and findings. In a project write up a research project thesis.

How Will You Learn?

Module and project teaching will comprise the following;

- Whole-group seminars/lectures on specific topics. Tutors and students will be encouraged to develop a tutorial atmosphere in which dialogue and discussion can take place.
- Whole-group practical classes in small groups to address a specific practical method or topic. These will be recorded in the student's practical files.
- Whole-group demonstrations. These will take place in Institute laboratories or the class-room to address specific technologies (i.e. expression array technology) or methods (i.e. array data analysis).
- Student presentations on specific topics.
- Individual tuition will take place for all students during the 4-unit project, or for students who require additional input in a particular topic area.
- Key generic skills will be acquired from each of the above.
- Teaching material will be available on the College internet site via VLE. A computer room with 16 PC's is provided for the use of Barts Cancer Institute students only.
- The majority of the teaching rooms, the practical lab and the computer room are on the Charterhouse Square campus. Some teaching may take place at St Bartholomew's Hospital, which is 5 minutes walk from Charterhouse Square.

The provision of key skills in the core module Research Skills and Sciences will enable students to maximise their ability to understand and learn from other modules. Students will maintain a file of practical work carried out in the core module which will be useful during the project module.

As self-directed learning is the major component of each module students will be encouraged to identify their own learning needs as modules progress. All students will have access to named personal mentors (lecturer grade or above) on entry to the course. These mentors will provide advice on issues arising from the course itself, and on issues such as post course employment and further training opportunities.

Students will have full access to the College/Medical School library and student computing facilities, in addition to the computer room provided. The course is delivered using a virtual learning environment provided by the college. This enables lecture notes and handout material to be available electronically, provides space for discussion and question boards and allows assessed work to be uploaded remotely. For Distance Learning students lectures and tutorials are captured and uploaded immediately onto the VLE. The captured lecture includes classroom audio, all projected slides or images and whiteboard annotations made by the lecturer.

Classroom teaching will also involve a real time assessment of the group understanding of the topic being covered using the Turning Point student response system. This involves questions embedded into presentations to which the students respond, using an individual unit that provides an anonymous response with a single click. This ensures that feedback is received from all students in the group, and provides students with a guide to their own understanding of a particular topic.

How Will You Be Assessed?

Assessment of individual taught modules includes in-course assessments (typically 40% of the module mark) and an examination paper (typically 60% of the module mark). There is a small variation in the relative contribution of each assessment method between modules.

In-course assessments include presentations (oral and poster), vivas, written assignments and practicals. For DL students assessed presentations are given via Skype.

The lab project will be equivalent to 4 units. A Master's degree will be awarded to those candidates fulfilling the academic requirements upon examination of the project.

How is the Programme Structured?

Please specify the full time and part time programme diets (if appropriate).

The full Masters course involves studying 12 units, totaling 180 credits (15 credits per unit). This includes:

- 7.5 units (112.5 credits) of compulsory taught modules
- 0.5 units (7.5 credits) of elective taught modules
- core dissertation which is equal to 4 units (60 credits)

Full time students take 4.5 taught units in semester 1 (Sept - Dec, delivered as 2 full days teaching each week on Wednesday and Thursday) and are then examined on those modules in early January. Students take a further 3.5 taught units in semester 2 (Jan - April, delivered over 3 days each week, Tuesday, Wednesday and Thursdays), with module exams at the end of that period. Students who have satisfactorily passed at least 4 units (60 credits) are then able to progress to the lab project module in semester 3.

Part-time students study 4 taught units (60 credits) in year 1 and 4 taught units (60 credits) in year 2. The lab project module can either be studied part-time in semester 3 in years 1 and 2, or full-time in semester 3 in year 2.

Distance learning students can study the course either full-time or part-time.

The module diet shown in the following table is for full-time students taking the course over 1 year.

For part-time students the typical module diet would be:

Year 1

Semester 1

Research Methods; Research Lab Skills

Semester 2

Molecular Diagnostic & Therapeutics; Genomic Approaches to Human Diseases; Cancer Prevention & Screening (Elective)

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Semester 3

Lab Project module

Year 2

Semester 1

Cancer Biology; Cancer Pharmacology; Pathology of Cancer

Semester 2

Biological Therapies; Drug Development; Paediatric & Adolescent Oncology (Elective)

Semester 3

Lab Project module

For students enrolling for a Diploma award involving only taught modules, the module diet would be the same as for the Masters course semesters 1 and 2. The module diet for Diploma students taking 4 taught modules and the lab project module would be finalised after discussion with the Programme Director and consideration of their prior knowledge.

Summary

MSc 12 units/180credits comprising : 8 taught units + 4 unit lab project

Pg Diploma 8 units/120 credits comprising : 8 taught units or 4 taught units + 4 unit lab project

Academic Year of Study

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Cancer Biology	CANM902	15	7	Compulsory	1	Semester 1
Cancer Pharmacology	CANM903	15	7	Compulsory	1	Semester 1
Pathology of Cancer	CANM909	7.5	7	Compulsory	1	Semester 1
Research Methods	TBD	15	7	Compulsory	1	Semester 1
Research Lab Skills	TBD	15	7	Compulsory	1	Semester 1
Biological Therapies	CANM907	15	7	Compulsory	1	Semester 2
Cancer Prevention & Screening	CANM912	7.5	7	Elective	1	Semester 2
Drug Development	CANM906	7.5	7	Compulsory	1	Semester 2
Genomic Approaches to Human Diseases	CANM920	7.5	7	Compulsory	1	Semester 2
Molecular Diagnostic & Therapeutics	CANM921	15	7	Compulsory	1	Semester 2
Paediatric & Adolescent Oncology	CANM911	7.5	7	Elective	1	Semester 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Lab Project	CANM913	60	7	Core	1	Semester 3

What Are the Entry Requirements?

The course is aimed at graduate scientists wishing to pursue a career in research and other professionals allied to medicine working in healthcare or industry.

For admission to the programme students will need either;

- a good degree (2i or above, or 2ii with extenuating circumstances confirmed by an academic referee) or degree equivalent from a recognised academic institution
- or
- an appropriate professional qualification with relevant work experience.

Students for whom English is a second language will also require a minimum IELTS 7 or TOEFL 610 score.

In addition to the above, students taking the course as a Distance Learning option will need access to computer and good internet connection, and will need to be within reasonable travelling distance of a British Council test centre or partner university to sit invigilated examinations.

How Do We Listen and Act on Your Feedback?

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

Each school/institute operates a Learning and Teaching Committee, or equivalent, which advises the School/Institute 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 all 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 student membership, or consideration of student surveys.

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.

Academic Support

Students are encouraged to interact with academic staff during classroom teaching to foster a tutorial-like learning environment. Members of the teaching staff, (typically the module lead and 1 other), mark all assessed work and provide written feedback on the in-course assessments. Students are able to view that written feedback at any time. Indeed, in semester 1 feedback is given on research Skills practical write-ups within 1-2 weeks of submission to enable students to incorporate that feedback into their subsequent write-ups. Feedback on progress and performance is given to students individually at the end of each semester by the Course Director, with the proviso that all marks are provisional until confirmed by the relevant examination boards.

If a student is having difficulty with a particular module, topic or practical, additional teaching support can be provided. Students also have access to named personal mentors who can advise on areas in which the student may be having difficulty, or an issues

such as post-course employment .

Programme-specific Rules and Facts

The academic regulations relating to the programme are those used by the College, except for the following:

Progression to dissertation or project:

To progress to the dissertation or project module, a student must:

- i. take modules to the value of 120 credits; and,
- ii. pass modules to the value of at least 90 credits; and,
- iii. achieve an average mark of at least 50.0 across all taught modules; and,
- iv. achieve module marks of at least 30.0 in all modules.

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)
- Access to specialist mentoring support for students with mental health issues and Autistic Spectrum Disorders.

Links With Employers, Placement Opportunities and Transferable Skills

This programme will provide students with the skills and experience necessary to pursue further academic research at PhD/MD level. It will also provide a strong foundation for those working in a clinical, pharmaceutical or diagnostic setting.

Our graduate destinations include: PhD studentships (internal and external to the Institute), medical school, laboratory research positions.

On competition there will be an opportunity for the top students to apply for one of the Institute's PhD studentships.

The distance learning option allows flexible learning and can be undertaken as part of Continuing Professional Development while employed by the National Health Service.

Programme Specification Approval

Person completing Programme Specification

Kaye Yeung & Katie Hale

Programme Title: MSc Cancer & Molecular and Cellular Biology

Person responsible for management of programme

Kaye Yeung

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

**Date Programme Specification approved by
Taught Programmes Board**

August 2015