Programme Title: MRes in Cardiac and Vascular Medicine

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:	MRes in Cardiac and Vascular Medicine
Name of interim award(s):	
Duration of study / period of registration:	1 year full time
QMUL programme code(s):	PSCVM
QAA Benchmark Group:	N/A
FHEQ Level of Award:	Level 7
Programme accredited by:	N/A
Date Programme Specification approved:	
Responsible School / Institute:	William Harvey Research Institute

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

N/A

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

N/A

Programme outline

This course provides state-of-the-art practical training in modern molecular and cellular pharmacological techniques alongside their application to in vivo methods of pharmacological investigation of cardiac and vascular disease mechanisms. The programme will deliver scientists adept in the crucial skill set needed for successful careers in UK Life sciences especially deeper phenotyping in cardiac and vascular research; for example in atherosclerosis, pulmonary hypertension, hypertension, arrhythmia, or nephrology. In particular this course is designed to provide a springboard for those individuals wishing to undertake a PhD in this field of research.

Aims of the programme

Altered cardiac and/or vascular function are common components of many cardiovascular pathologies, yet the mechanisms regulating such changes and the targets for disease-modifying treatments remain poorly understood. All training will be based around this theme and provide the following:
(1) A Foundation year in an integrated four-year postgraduate training programme for the William Harvey Research

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Institute and Departments with allied interests located on the Charterhouse Square Research campus of the School of Medicine and Dentistry.
(2) A research training that integrates the techniques of functional genomics into the investigation of disease mechanisms. The programme will provide generic skills in protein and molecular methods used for measurement or identification of gene expression.
(3) Insights into the techniques, in vitro and in vivo, used to investigate diseases such as hypertension, atherosclerosis, myocardial infarction, diabetic vascular disease, renal failure, and critical care research.

Endothelial/vessel wall cell biology and cardiac inflammatory mechanisms are common themes for the majority of these topics. Hence, the programme will lead to a sound understanding and detailed knowledge base from which to pursue further research studies in the broad disciplinary area of cardiovascular biology, thereby equipping students for further postgraduate training. At least 90% of students pursuing this programme are expected to progress to a PhD, and follow a research career in academia or industry. Indeed, this MRes forms part of the BHF-funded MRes/PhD programme awarded to the WHRI (although the course is also made available to self-funders outside the remit of the BHF scheme).

What will you be expected to achieve?

When completing this MRes students will be expected to achieve the following learning outcomes:

Academic Content:	
A 1	Critically assess research work in cardiovascular biology
A 2	Apply an integrative approach to the study of vascular disease mechanisms using biochemical methods, molecular biology, cell biology, and pharmacology
A 3	Be better prepared for careers in a post-genomics era with an improved potential for contributing to the identification of novel targets for the development of new medicines.
A 4	Develop and establish their own lines of research. A hallmark of those participating in this programme will be excellence in practical skills combined with analytical reasoning and original thinking. The training and experience will yield individuals who are able to and who will have the confidence to initiate work in new directions whether pursuing a career in academia or industry.
A 5	Successfully convey research work, analytical thinking, assessment of new research areas through presentation and writing skills.
A 6	To provide laboratory skills, developed in molecular biology and protein identification, which will be applicable to any area of life sciences research.
A 7	To develop key generic skills essential for a successful career in research –critical thinking in all areas of cardiovascular biology, critical data analysis and handling, report writing and presentation skills.

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Disciplinary Skills - able to:	
B 1	Display an awareness of cardiac and vascular inflammatory pathologies
B 2	Display insights into the techniques used to investigate diseases such as hypertension, atherosclerosis, myocardial infarction, diabetic vascular disease, renal failure, and critical care research
B 3	Demonstrate initiative and originality in problem solving.
B 4	Maintain an objective approach to the physiochemical and in vivo characteristics required for candidate selection.
B 5	Display an awareness of the strengths, weaknesses and utilization of specific techniques.
B 6	Appreciate the need for research, an evidence base, and reflective practice when making professional judgements.

Attributes:	
C 1	Can act autonomously in planning and implementing tasks at a professional or equivalent level
C 2	Demonstrate appropriate and comprehensive practical and theoretical skills as well as advanced communication expertise, allowing decision making in complex and unpredictable situations
C 3	Demonstrate autonomy in self directed learning and realise their scope of practice

How will you learn?

One of the major strengths of the course lies in the fact that the teaching staff consist of not only institute members but also leading professionals working in the pharmaceutical industry. This exceptional expert “panel”of internal and external lecturers is actively engaged with the course. Members of the WHRI who teach on our course are invaluable assets to the progression of the students as they are not only intellectually stimulating them, but engaging them as self-directed learners, and more closely connecting them to the university and college as a community. Moreover, this mix of educators enables exposure of the students to world-leading, cutting-edge science.

Teaching methods employed during this MSc course consists of lectures from the William Harvey Research Institute staff and outside experts, using well-established classic teaching methods in order to create a stimulating and effective learning environment. The taught course will be delivered on the Charterhouse Square campus and will be supported by the College's virtual learning platform. Overall course information, including student handbook and timetables, will be distributed through QMplus.

A variety of teaching strategies will be employed. Each module is presented on-line as:
(1) Summary of the component
(2) Aims and Objectives
(3)Plan for assessments

Additional one-to-one tutorials with individual students will be arranged if required
All students registered on the course will have access to the college on-line library facilities. This gives access
to a large number of relevant journals. Students will have access to other academic literature and journals via their QMUL log-on.

The topics for the module outlined in the syllabus will be delivered using a variety of methods to include:

(1) Lectures –These lectures will be delivered by members of the course faculty with occasional 'guest lectures' for selected topics.
(2) Practicals - There are 2 forms of practical, hands-on and observation. For the hands-on practical the organising supervisor may request a full write-up of the practical. Students will be provided with a practical notebook where all experimental details must be kept. This may be reviewed by the course director at the end of the core module.
(3) Lecture notes and document reading material. Topics will also be covered in the form of guided reading –with a reading list or short series of scientific papers to read followed by questions or exercises.
(4) Seminars / Tutorials. Some topics may be covered in seminars. These will be based around a topic or around a series of relevant articles from scientific journals.
(5) Online reading lists, linked where possible, to the journals in which the papers appear.
Students are also involved in using online technologies (e.g. QMPlus, Facebook, Skype) which allow discussion and exchange of ideas, sharing knowledge as well as to review the lecture sessions in their own time and at their own pace.

The programme aim is to create an environment in which all participants have the opportunity to learn and explore issues and ideas in depth, from a variety of viewpoints.

How will you be assessed?

Students will be assessed based on online submitted written assignments & oral communications. The course team evaluates the progression of students on their assignments, maintaining the highest quality of work as well as achieving the course learning objectives.

The formal assessment of this MRes will comprise:
(1) Taught element (60 credits; 33.3%)
(2) Research element (120 credits; 66.7%)

This assessment is sub-divided as follows:
(1) Taught element: 8 Journal Club presentations (6 credits each) & 1 Workshop write-up (12 credits)
(2) Research element: Dissertation (84 credits), Presentation (24 credits) & Viva/presentation Q&A (12 credits)

Full attendance is expected throughout the course and is a prerequisite for successful completion of the programme (legitimate reasons for non-attendance will be allowed, e.g. sickness etc.)

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.

The programme will consist of a core module pursued by all students (12 weeks) followed by a period of independent research (34 weeks).

The taught element will comprise:
(1) Journal Club
Students will be expected to make 11 presentations during the first semester. The first three presentations are only formatively assessed. The remainder will be scored and will contribute to the final mark. The first presentation is on any scientific topic of interest to the student and acts as a training session. Following this, the research paper will be allocated. All papers are listed in the course handbook. Each presentation should be a maximum of 20 minutes, followed by 10-15 minutes of questions and general discussion. All students are expected to ask questions. The ability to assess and analyse research areas will be a key skill to ensure their future success in research careers in academia or industry. This approach will also help students to master oral communication skills and give them confidence to take on new projects.

(2) Workshop
There will be three workshops focusing on bioinformatics, cardiac/vascular inflammation and atherosclerosis. Each will involve a session for instruction where students will be provided with background information (i.e. familiarisation with recent key publications as well as current concepts in the broad disciplinary area) then directed as to the individuals within the institute & scientific areas they need to investigate further, followed by self-directed learning by the students, then a follow-up session to discuss findings and draw conclusions. One of three workshops will be written up as a formal assessment. The strategy of the

workshops is for students to learn to critically assess the relevant literature and by brainstorming the subject matter they will be taught to develop research plans to investigate a particular hypothesis or address particular technical issues.

The research element will consist of one, two or three project rotations (student choice) pursuing a common theme and suitable for a dissertation, undertaken in different research laboratories (time split equally between groups). Students will receive a list of potential research projects in the first semester and should contact and arrange to meet with PIs to discuss projects before choosing. In early December students will be asked to pick their top 3 projects. Our aim is to provide as many students as possible with their top choices, which will be allocated before the end of the first semester. Projects will be undertaken from the beginning of January to the middle of August. For each student the precise programme of work will be defined with their project supervisor. Students may be expected to give short informal presentations of their projects to other MRes students and -particiapte in the individual group lab meetings.

Academic Year of Study

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Inflammation: Cellular and Vascular Aspects	WHRM922	60	7	Core	1	Semester 1
Research Project	WHRM923	120	7	Core	1	Semesters 2 & 3

What are the entry requirements?

Proficiency in written and spoken English is a prerequisite in accordance with Queen Mary University of London regulations. English Language proficiency must be, or exceed 7 (IELTS) or 600 (TOEFL).

Applicants will normally possess a first degree in a science discipline (ideally 1st , but 2:1 minimum) from a University recognised by Queen Mary College. More details can be found on the Queen Mary University of London website.

References from two academic/scientific referees are required to support each application, with a critique of a research or clinical research article in the chosen Option.

How will the quality of the programme be managed and enhanced?

The programme will fall under the remit of the WHRI Teaching Committee which ensures the highest standards across all courses organised by the WHRI. This involves many quality control checks including peer-observation of teaching and internal discussions of best practise and innovative teaching strategies. The majority of lecturers on the course will also have a recognized teaching accreditation (e.g. FHEA). The course organiser meets regularly with the students at 'catch up' sessions (every 2nd or 2rd week) to get real-time feedback on the course such that any concerns can be quickly and efficiently remedied. There is also a discussion of the students following completion of the course to understand what worked well and what worked slightly less well such that iterations can be made year-on-year to enhance the content and delivery.

How do we listen to and act on your feedback?

Students on our course are never seen as "silent partners" in the enterprise of improving teaching. One way their voices can be heard is through completion of feedback forms for each module. The feedback forms gain the students views on the clarity, style of presentation, course material, stimulation and an overall rating of the lectures (please see example of a feedback form below). Student feedback is discussed with the lecturer and is encouraged to make necessary changes following student suggestions.

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Module:
Lecturer Name:
Class:
Please rate the following aspects on a scale of 1 (awful) to 5 (excellent)
Clarity (1-5)
Lecture Style (1-5)
Course Material (1-5)
Stimulation (1-5)
Overall rating (1-5)
Specific comments:

All students are in a regular contact with members of the course team. Pastoral as well as academic support is offered on a regular basis. Students are encouraged to contact course team members via email or by phone.

Assessment of the effectiveness of student support mechanisms is evaluated by the following means:
(1) Continuous feedback to the students is an extremely important mechanism to facilitate the students' learning experience. Feedback is offered on drafts of coursework and academic progress following formative and summative assessment.
(2) Staff-student liaison. Students are encouraged to keep in close contact with the course team members to convey their experience and comments, and to seek and help or advice they may require.

Assessment of action on student feedback:
(1) Continuous student feedback throughout the year is an essential tool with which to maintain or improve the quality and student experience of the course. 'Course catch-up' sessions are arranged every 2-3 weeks during the taught element so the course organizer receives real time feedback and can iron out any students concerns.

What academic support is available?

In addition to staff-student liaison, all students are allocated a personal tutor who can be contacted during office hours. The role of the personal tutor is to advise students on any aspects of the course which the student may wish to raise. A senior tutor is also available for consultation if for any reason their own tutors are not available or unsuitable. Also, Institute-level committees (i.e. WHRI Teaching Committee) will provide on-going management of the Programme.

Programme-specific rules and facts

N/A

Specific support for disabled students

The Charterhouse Square Campus is readily accessible by disabled individuals.

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Links with employers, placement opportunities and transferable skills

Student Employment Prospects: It is expected that the majority of students will pursue a PhD within the William Harvey Research Institute, some as part of the BHF-funded MRes/PhD scheme. Ultimately, this training is ideal for employment in academia and pharmaceutical industry, in both research and non-research based work.

Programme Specification Approval

Person completing Programme Specification:	Prof. Adrian Hobbs
Person responsible for management of programme:	Prof. Adrian Hobbs
Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee:	06/02/2024 (For Sept 2024)
Date Programme Specification approved by Taught Programmes Board:	

Queen Mary University of London