Imperial College London

Programme Specification (Master's Level)

MRes Clinical Research

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.

Programme Information				
Award(s)	MRes			
Programme Title	Clinical Research			
Programme code	A3CR (1YFT)		A3CR24 (2YPT)	
Awarding Institution	Imperial College London			
Teaching Institution	Imperial College London			
Faculty	Faculty of Medicine			
Department	Department of Medicine			
Associateship	None			
Mode and Period of Study	1 calendar year full-time (12 months) 2 calendar years part-time (24 months)			
Cohort Entry Points	Annually in October			
Relevant QAA Benchmark Statement(s) and/or other external reference points	Master's Degrees in Medicine			
Total Credits	ECTS:	90	CATS:	180
FHEQ Level	Level 7			
EHEA Level	2nd cycle			
External Accreditor(s)	None			
Specification Details				
Student cohorts covered by specification	2017-18 entry			
Person Responsible for the specification	Fiona Bibby			
Date of introduction of programme	October 2008			

Date of programme specification/revision	March 2019

Description of Programme Contents

The MRes in Clinical Research is an umbrella programme currently comprising of 4 pathways. All students undertake 3 core modules, in addition to a fourth module that is specific to the pathway. The taught aspect (exams and coursework) contributes to 30% of the overall mark, with the research aspect (thesis and viva) covering the remaining 70% weighting of the course. The course is supported by both NHS and Imperial academic staff, who regularly review content and assessment methods. The programme is based at the Hammersmith campus; however, a very small number of students may undertake their projects at other campuses.

The aim of the programme is to provide students with a broad training in and practical experience of designing, implementing, and reporting clinical studies. All students complete the majority of the taught element together; the opportunity to specialise in their area of interest is provided through a pathway specific taught module and extensively through the research side of the programme.

The research project allows students to implement essential research skills supported by their supervisor(s). Project options will be provided by staff, if students have a particular topic in mind this can also be considered. The key criteria are that the research question is examined using appropriate design and methodology, the project is feasible given available time-scales, and the scope and depth is sufficient for Master's level study.

During the project, students will consolidate and build upon knowledge and skills learnt in the modules. This may include, systematic evidence synthesis, managing data sets, varying types of analysis, a range of clinical and laboratory skills, interviewing or facilitation experience. Written and oral data presentation skills are developed through the thesis, poster presentations and the oral assessment (viva).

Translational Medicine – aims and objectives

Aims:

a) Discuss challenges in undertaking clinical research in regenerative medicine.
b) Evaluate clinical research issues underlying studies that explore genetic modification.
c) Describe how devices are approved.
d) Discuss and illustrate the use of humans to explore disease mechanisms, proof-of-concept.
e) Understand why drugs fail in development.

Objectives:

The Translational Medicine module will introduce students to the challenges of research in non-drug interventional research, including regenerative medicine and devices and illustrate the use of humans as an experimental animal. The module will also provide students with the opportunity to investigate why drugs fail in development in more detail.

Students will be able to discuss the special considerations around how a range of non-drug interventions are developed for human health. They will appreciate the possibilities for using humans as volunteers to understand disease mechanisms and drug action through challenge studies. They will be able to discuss common reasons why some drugs fail in development.

Diabetes and Obesity – aims and objectives

Aims:

a) Describe and evaluate disease mechanisms that underpin diabetes and obesity.
b) Describe and compare research strategies to treat diabetes and obesity.
c) Discuss cellular and molecular mechanisms that underpin appetite regulation.

d) Evaluate novel nutritional research methods in diabetes and obesity.

Objectives:

The Diabetes and Obesity module will provide students with a deep understanding of the underlying pathophysiology of Type 1 and Type 2 Diabetes, and obesity. Importantly, this module will evaluate recent research advances in the management and treatment of diabetes and obesity, including appetite regulation.

During this module the students will gain skills in identifying patients with diabetes and obesity and their associated risk factors. They will also build on skills of critical appraisal, data interpretation and presentation in relation to diabetes and obesity research.

Human Nutrition – aims and objectives

Aims:

a) Evaluate a variety of methods to measure dietary intake, nutritional status and appetite.
b) Discuss epidemiological versus experimental methods when testing different nutritional problems.
c) Explain appetite regulation in humans.
d) Explain why obesity and diabetes continue to increase throughout the world.
e) Evaluate how cutting edge technology may give insight into metabolic response to diet.

Objectives:

The Human Nutrition module will provide students with a detailed discussion of the research methods required to study human nutrition in controlled and free living situations. There will be an exploration of body composition and appetite regulation as a way of highlighting these techniques. Students will be exposed to the latest imaging, metabolic enquiry and nutritional epidemiology techniques.

During this module the students will gain skills in measuring diet, nutritional status and appetite. They will also build on skills of critical appraisal, data interpretation and presentation in relation to nutrition research.

Human Vaccinology pathway – aims and objectives

Aims:

a) Introduce students to challenges of research conducted during design and development of vaccines against human diseases (mainly infectious).
b) Obtain a basic understanding of the mechanisms of action and efficacy of vaccines.
c) Illustrate the use of humans as an experimental animal in vaccinology.
d) Understand the use of epidemiology and statistical methods in evaluating vaccine safety and need.

Objectives:

The pathway will focus on prophylactic vaccines against infectious diseases, set in the context of populations as well as the individual. It will provide students with the opportunity to gain a basic understanding of vaccine immunology, insight into cutting-edge technologies being applied to vaccinology, and investigate why vaccines succeed or fail in development, or after introduction. Some prior immunology, microbiology or infectious diseases expertise is desirable as advanced concepts of antigen design, and immune response measurements (including serology and CMI) will be covered. The projects will provide an opportunity to gain basic laboratory experience in research methods, or epidemiology / statistical techniques as applied to vaccines.

Learning Outcomes

1. Knowledge and Understanding

Knowledge and Understanding of:

1. Describe principles that underpin clinical investigation.
2. Describe principles of modern technologies used in clinical research.
3. Describe principles that govern research design, hypothesis formulation and research methodologies.
4. Describe the importance of regulation of clinical research, including ethical considerations.
5. Understand concepts, principles and theories that underpin research projects.

2. Skills and other Attributes

Intellectual Skills

1. Evaluate current developments in the field of clinical research.
2. Generate and test hypotheses using appropriate experimental design with due regard to regulatory issues.
3. Plan, implement and organise a substantial programme of original research.
4. Interpret data and evaluate information from a wide range of sources.
5. Critique scientific literature.
6. Communicate ideas and results.

Practical Skills

1. Plan a clinical study.
2. Monitor clinical and/or laboratory safety.
3. Interpret clinical and/or laboratory data.
4. Perform data analysis using relevant computational tools and packages.

Professional Skills Development

1. Demonstrate competency in communication skills.
2. Demonstrate problem-solving skills.
4. Transfer techniques and solutions from one discipline to another.
5. Perform tasks using Information and Communications Technology.
6. Manage resources and time.
7. Demonstrate independent learning.
8. Retrieve, analyse and assimilate complex information.

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: www.imperial.ac.uk/students/academic-support/graduate-attributes

Entry Requirements

Academic Requirement	Minimum 2:1 Honours degree in medicine or life sciences.
Additional Requirements	None

Applicants who do not meet the academic requirements above but who have substantial relevant industry experience may also be considered.

Home/EU/international students will be invited to attend a post-application interview.

English Language Requirement	Standard requirement for PG courses as noted on website https://www.imperial.ac.uk/study/pg/apply/requirements/english/
The programme's competency standards documents can be found at: http://www.imperial.ac.uk/medicine/study/postgraduate/masters-programmes/mres-clinical-research/	
Learning & Teaching Strategy	
Scheduled Learning & Teaching Methods	• Lectures • Interactive workshops • Student presentations • Journal clubs
E-learning & Blended Learning Methods	• Online modules available through Imperial's VLE Blackboard
Project Learning Methods	• Group meetings to discuss and present project work • Mock poster sessions • Oral presentations • Project reports • Research proposal
Placement Learning Methods	• N/A
Assessment Strategy	
Assessment Methods	• Examinations • Coursework • Thesis • Viva voce
Academic Feedback Policy	
Students receiving low results (D and F grades) meet with staff to discuss in detail. Feedback and the option to meet with staff is available to all students, general feedback is also applied if appropriate. There is also the opportunity for feedback within journal clubs/seminars, during which students are given the opportunity to present updates on their project work and appraise papers as a group, discussing and providing feedback with staff and peers. N.B Mock exam papers and a mock critical appraisal coursework assignment is provided to students (with answer guidance).	
Re-sit Policy	
Any student receiving a critical fail for exams or coursework (F grade, <40%) is required to re-sit at the next available opportunity, usually the following year. Re-sit capped at 50%.	
Mitigating Circumstances Policy	
The College's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/registry/exams	

Students are advised to submit any mitigating circumstances ahead of the assessment (within reason). These are reviewed by the Departmental mitigating circumstances panel and recommendations provided to exam board.

Assessment Dates & Deadlines	
Written Examinations	December and April
Coursework Assessments	June
Project Deadlines	August (viva in September)
Practical Assessments	N/A

Assessment Structure

Module	ECTS	% Weighting
Research Conduct and Governance	10	10%
Clinical Research Measures	5	5%
1 x elective module	5	5%
Clinical Research Scenarios	5	5%
Critical Appraisal	5	5%
Research Project and Viva	60	70%

Rules of Progression

The pass mark is set at 50% for the final degree mark.

Pass

A student must:

- Achieve an overall aggregate mark of 50% on the programme.
- Achieve an aggregate mark of at least 50% in each module
- Students may be compensated in a maximum of 15 ECTS for the Master's award (i.e. excluding the research element) with a mark of at least 40% in each module.

Merit

A student must:

- Achieve an overall aggregate mark of 60% on the programme.
- Achieve an aggregate mark of at least 60% in each module
- Students may be compensated in a maximum of 15 ECTS for the Master's award (i.e. excluding the research element) with a mark of at least 40% in each module.

Distinction

A student must:

- Achieve an overall aggregate mark of 70% on the programme.
- Achieve an aggregate mark of at least 70% in each module
- Students may be condoned in a maximum of 15 ECTS for the Maste'rs award (i.e. excluding the research element) with a mark of at least 50% in each module.

Marking Scheme

- **A** 70% - 100% Marks represent a distinction performance
- **B** 60% - 69% Marks represent a merit performance
- **C** 50% - 59% Marks represent a pass
- **D** 40% - 49% Marks represent a fail performance at MRes level
- **F** 0% - 39% Marks represent a critical fail performance

Indicative Module List											
Code	Title	Core/ Elective	L&T Hours	Ind. Study Hours	Place-ment Hours	Total Hours	% Written Exam	% Course-work	% Practical	FHEQ Level	ECTS
	Research Conduct and Governance	Core	35	215	N/A	250	100%	0%	0%	7	10
	Clinical Research Measures	Core	35	90	N/A	125	100%	0%	0%	7	5
	Clinical Research Scenarios	Core	35	90	N/A	125	100%	0%	0%	7	5
	Critical Appraisal	Core	10	115	N/A	125	0%	100%	0%	7	5
	Translational Medicine (pathway module)	Elective	35	90	N/A	125	100%	0%	0%	7	5
	Human Nutrition (pathway module)	Elective	35	90	N/A	125	100%	0%	0%	7	5
	Diabetes and Obesity (pathway module)	Elective	35	90	N/A	125	100%	0%	0%	7	5
	Human Vaccinology (pathway module)	Elective	35	90	N/A	125	100%	0%	0%	7	5
	Research Project and Viva	Core	10	1490	N/A	1500	0%	100%	0%	7	60

Supporting Information
The Programme Handbook is available at: http://www.imperial.ac.uk/medicine/study/postgraduate/masters-programmes/mres-clinical-research/
The Module Handbook is available at: N/A
The College's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/pg/apply/requirements
The College's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance
The College's Academic and Examination Regulations can be found at: http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations
Imperial College is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine". http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters-statutes-ordinances-and-regulations/
Imperial College London is regulated by the Higher Education Funding Council for England (HEFCE) http://www.hefce.ac.uk/reg/of/

Modification			
Change to the course structure and weightings to reflect a more modular system.	Programmes' Committee	09 May 2017	PC.2016.101