



## 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 Musculoskeletal Sciences A9S1 MSc FT Musculoskeletal Clinical Sciences A9S2 MSc VM Musculoskeletal Sciences A9S3 MSc VM Musculoskeletal Clinical Sciences A9S4 PGDip FT Musculoskeletal Sciences A9D1 PGDip FT Musculoskeletal Clinical Sciences A9D2 PGDip VM Musculoskeletal Sciences A9D3 PGDip VM Musculoskeletal Clinical Sciences A9D4 PGCert FT Musculoskeletal Clinical Sciences A9C2 PGCert VM Musculoskeletal Clinical Sciences A9C4
Duration of Study / Period of Registration	1 year
QM Programme Code / UCAS Code(s)	(see above)
QAA Benchmark Group	
FHEQ Level of Award	Level 7
Programme Accredited by	
Date Programme Specification Approved	27 Apr 2011
Responsible School / Institute	William Harvey Research Institute

Schools also involved in teaching part of the programme
William Harvey Research Institute
Barts & London Musculoskeletal Clinical Academic Unit

### Programme Rationale

The MSc in Musculoskeletal Clinical Science and MSc in Musculoskeletal Science (MSK) provide a one year programme leading to a higher degree with options for clinicians, scientists and allied health professional who wish to specialize in musculoskeletal medicine, rheumatology, and sciences. For each it will provide an advance knowledge in this speciality, and for the clinical professionals, experience and skills relevant to the practice of rheumatology via general study, clinical attachment, and undertaking a specific research project. The Science option offers the only formal MSK research degree in rheumatic diseases. The major MSK MSc is orthopaedic in nature (UCL), and other courses are aimed at GPs and allied health professionals. With the potential of offering this as a one-year full-time programme, we envisage marketing this for overseas and UK applications.

Fit within School: There are no current courses in the school offering these or allied musculoskeletal sciences, rheumatology, clinical or scientific. The basic science modules will fit with the inflammation topics of the intercalated BMedSci, MRes, and especially MSc Sports & Exercise Medicine with which this course shares modules. The new modules are be developed to enable

integration into further planned postgraduate courses such as Integrative Inflammation, and Rheumatology Nursing and others.

**Demand and Broadening of School recruitment:** There is demand within Europe and the Middle East for this specialization. The course aims to broaden the recruitment base of the School to European and Middle Eastern clinicians and scientists.

**Benefit to existing programmes:** Mechanisms and resources for the teaching of musculoskeletal science and rheumatology will be constructed and focussed on the subject for inclusion in undergraduate, intercalated degree, and PhD teaching.

**National trends:** The Clinical Rheumatology option will be the only full-time MSc course in this speciality in the UK, and the only one to offer embedded clinical attachments or research projects. The other three related courses (Kings College London, Manchester University, and Oxford University) which might be seen as competitors, are all 2 year part-time, and clinical attachments and projects have to be carried out at their place of work.

**Prospects for Graduate employment:** This course fulfils the need for a deeper understanding of disease mechanisms and therapeutic approaches generated by the ever shortening of clinical training, especially the tendency to shorten clinical training with brief specialist clinical rotations to attempt to produce 'fit for purpose' consultants rapidly. This course will give employers the confidence that a rigorous training regime coupled with a highly relevant clinical rotation will enable them to employ a clinician who can immediately contribute to a Rheumatology Department, have relevant research experience, and be able to achieve specialist certification within a much shorter period of time than would otherwise be the case. Employers of scientists will see a scientist already trained in all of the knowledge and laboratory tools to immediately fit into a busy MSK research environment, with not only proof of a high standard of expertise and research experience but also clinical awareness.

**Relationship to QAA benchmarks and NQ framework:** Modules would be aimed at Level 7 of the QAA's National Qualifications Programme.

**Enhancement of School Research Base:** The research projects carried out will enhance the research base through the provision of talented clinical and scientific expertise with funds to enable the continuation of world class research. In addition talented students may be streamed into School PhD programmes.

## Educational Aims of the Programme

MSc Musculoskeletal Clinical Sciences:

- 1) possess general musculo-skeletal clinical awareness, practice, differential diagnosis, and therapy.
- 2) possess advanced knowledge in clinical best practice
- 3) be able to work in a successful specialist Clinic under the NHS system.
- 4) enhance the multi-disciplinary approach to care
- 5) possess advanced knowledge of current understanding of the pathogenesis and pathobiology of musculo-skeletal diseases
- 6) understand the principle of best practice and the way it is reviewed according to new information deriving from clinical trial data
- 7) undertake critical appraisal of clinical trial data and apply such data to clinical practice.
- 8) critically appraise basic science data and use it to improve clinical research in musculo-skeletal disorders.
- 9) design and execute original research in musculoskeletal science by directly undertaking a project, presenting results and manuscript preparation.
- 10) be able to contribute to rheumatology locally and nationally

MSc Musculoskeletal Sciences:

- 1) possess autonomy in general musculoskeletal research skills.
- 2) possess advanced knowledge in the scientific basis of musculoskeletal function.
- 3) be able to work in a successful clinical research laboratory both independently and as part of a team
- 4) be able to work with specialist clinical and nursing staff in the clinical environment.
- 5) enhance the team approach to research
- 6) possess advanced knowledge of current understanding of the pathogenesis and pathobiology of musculo-skeletal diseases
- 7) Possess advanced knowledge of the principles, current practice and deficiencies on the treatment of musculo-skeletal conditions
- 8) Identify clinical needs in musculoskeletal medicine
- 9) undertake critical appraisal of scientific research and apply such data to directing future research.
- 10) design and execute original research in musculoskeletal science by directly undertaking a project, presenting results and

manuscript preparation.  
11) be able to contribute to musculoskeletal research nationally and globally.

### Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced to the relevant QAA benchmark statement(s) (see above) and the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008), and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education 2003 and Queen Mary Statement of Graduate Attributes have been used as a guiding framework for curriculum design.

Knowledge and understanding of:	
A 1	the application of the musculoskeletal sciences and medicine
A 2	The ethical issues, dilemmas and their resolution
A 3	Advanced knowledge of the aetiology, pathogenesis and clinical manifestations in musculoskeletal science and rheumatology
A 4	Advanced research (MSc MSK Science) or clinical (MSc MSK Clinical Science) knowledge in the analysis of complex, incomplete, 'cutting edge' or contradictory areas of the disciplines
A 5	Comprehensive applications of research techniques and methodologies in musculoskeletal science and rheumatology

Intellectual skills - able to:	
B 1	Critically appraise scientific knowledge base underpinning musculoskeletal science and rheumatology
B 2	Critically analyse and discuss current practice in musculoskeletal science and rheumatology
B 3	Evaluate different research scholarship and methodologies
B 4	Appraise published work at the forefront of musculoskeletal and rheumatology research
B 5	Identify and argue areas for clinical and research improvement
B 6	Initiative in research (MScMSK Science) and clinical (MSc MSK Clinical Science) problem solving

Transferable skills - able to:	
C 1	Advanced contribution and management of the multi-disciplinary team.
C 2	Ability to communicate professional, clinical and research topics in written and oral form.
C 3	Critical awareness of research paper publication processes

C 4	Organise workload to meet deadlines
C 5	Integrate knowledge and published work at the forefront of musculoskeletal science into innovative reviews
C 6	Apply statistical techniques and skills to research and clinical practice
C 7	Use information technology and learning resources
C 8	Ability to guide own as well as the critical learning of others.
C 9	Self evaluation, reflective on own and others' functioning to improve practice

Practical skills - able to:	
D 1	Apply intellectual skills to research (Science and Clinical Option) and clinical (Clinical Option) problems
D 2	Plan, execute, analyse and write up a research project or programme
D 3	Analyse quantitative and qualitative data
D 4	Apply best practice in the research and clinical environments
D 5	Perform advanced Research (science) and clinical (Clinical Option) skills in musculoskeletal science and rheumatology
D 6	Perform research in a laboratory and clinical environment safely
D 7	Perform laboratory techniques accurately and appropriately to the research need
D 8	Ability to exercise initiative and personal responsibility in musculoskeletal research (Science Option) and clinical practice (Clinical Option).

## Teaching, Learning and Assessment Strategies

The course is designed to demonstrate academic progression from critical knowledge of physiology, pathological processes and then pharmacology. These are then integrated into the complex diseases of the musculoskeletal and connective tissue systems. Throughout, the knowledge and synthesis of molecular, cellular and tissue responses are interwoven to enable a deep understanding of processes that drive disease and may be manipulated therapeutically.

Learning and teaching will combine variety of formats. Scientific components will be delivered through lectures, tutorials and self directed learning. Problem based learning will be used for the development of critical thinking and clinical problem solving skills.

Integrative assignments will permit the synthesis of knowledge, development of independent thinking for the different stages of the course, and scientific writing as preparation for the research dissertation. Assignment requires its presentation to peers and examiners. As scientific and clinical science researchers, students will be integrated into the laboratories of the William Harvey Research Institute [WHRI] and Clinical Academic Unit, where they will be part of the science and clinical teams, so in a supportive and learning environment to develop their potential as independent researchers and contribute to clinical science or to progress after graduation to PhD programme of study. Assessment of analytical and critical thinking and will be through written examination papers, written in-course assignments.

There are two pathways for the course: (i) MSc Musculoskeletal Clinical Sciences, and (ii) MSc Musculoskeletal Sciences.

(i) MSc Musculoskeletal Clinical Sciences: the clinical judgment through knowledge, analytical and therapeutic management skills will be learned in the modules specific for this pathway. Students will be required to prepare clinical case reports, as well as contribute to clinical case meetings. The clinical assessment components of the course will be demonstrated in the radiology and

clinical case meetings they shall attend. The taught components of clinical management will be delivered through a set of PBLs, and regular attendance and observation at outpatient clinics, as well as a rotation through the different clinics for each of the musculoskeletal specializations. History-taking, diagnosis, and therapeutic management will be examined by Observed Structured Assessment, their personal portfolio, and clinical attendance will be recorded.

(ii) MSc Musculoskeletal Sciences: Students will study Modules 5, 9, 10, 11 where they will learn the principles and application of advanced research techniques through lectures, practicals, and demonstrations, and include demonstrations of in vivo studies. Applied level 7 cognitive skills will be learned and examined through the preparation and presentation of a detailed and topical scientific review of the clinical and scientific literature and practice. They will also attend outpatient clinics and a session of each of the specialist clinics in order to mature their understanding of the realities of musculoskeletal disease and the clinical context. The synthesis of all level 7 skills shall be addressed in the implementation, write-up and examination of the MSc project through its dissertation, presentation, and Viva Voce. All learners will attend and contribute to weekly laboratory meetings, WHRI seminars, as well as the Postgraduate Research in Progress meetings. Communication and presentation skills are developed throughout in every module.

### Programme Structure(s) and Requirements, Levels and Modules

The course flows in three parts. Part 1 Comprises the PG Cert level, for all learners on the course, comprising MSK modules 1-4. The second part comprises the second stage of the PG Dip level for the two MSc wards, with the Clinical Sciences comprising MSK modules 5-8, and the Sciences award comprising MSK modules 5, 9-11. Part 3 comprises the MSc research project and thesis.

MSK module 7, 8, and 11 clinical observation is carried out throughout the course from semesters 1-4, as are attendance and contribution to laboratory meetings, WHRI seminars and Research-in-Progress meetings.

Modules common to both pathways - each 15 credits at level 7

1) PGCert & MSc Musculoskeletal Sciences Clinical Sciences and PGCert & MSc Musculoskeletal Sciences

MSK1 Musculoskeletal Science

MSK2 Inflammation & Immunology

MSK3 Musculoskeletal Disease

MSK4 Pharmacology of Musculoskeletal Disease

Pathway-specific modules – each 15 credits at level 7

2) MSc MSK Clinical Sciences & PGDip

MSc MSK Sciences & PGDip

MSK5 Research Methods – I

MSK5 Research Methods I Study Design

MSK6 Musculoskeletal Assessment – I

MSK9 Research Methods II in vitro

MSK7 Musculoskeletal Assessment – II

MSK10 Research Methods III in vivo

MSK8 Musculoskeletal Disease –

MSK11 Critical Science

Clinical Management

3) Masters dissertation 60 credits at Level 7

SMK12 MSc Research Project Module 6 Project Dissertation

	Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
X	Musculoskeletal Science	MSK1	15	7	Compulsory	1	Semester 1

Programme Title: MSc Musculoskeletal Sciences, MSc Musculoskeletal Clinical Sciences

X	Inflammation & Immunology	MSK2	15	7	Compulsory	1	Semester 1
X	Pharmacology of Musculoskeletal Disease	MSK3	15	7	Compulsory	1	Semester 2
X	Musculoskeletal Disease	MSK4	15	7	Compulsory	1	Semester 2
X	Research Methods I	MSK5	15	7	Core	1	Semester 1
X	Musculoskeletal Assessment I	MSK6	15	7	Compulsory	1	Semester 1
X	Musculoskeletal Assessment II	MSK7	15	7	Compulsory	1	Semester 2
X	Musculoskeletal Disease - Clinical Management	MSK8	15	7	Compulsory	1	Semester 2
X	Research Methods II in vitro	MSK9	15	7	Compulsory	1	Semester 1
X	Research Methods III in vivo	MSK10	15	7	Compulsory	1	Semester 2
X	Critical Science	MSK11	15	7	Compulsory	1	Semester 2
X	MSc Project Dissertation	MSK12	60	7	Core	1	Semesters 1-3

### Criteria for Admission to the Programme

Proficiency in written and spoken English is a prerequisite in accordance with Queen Mary University of London regulations, and Home Office Regulations for UK entry, whichever is the greater. English Language proficiency must be, or exceed 7 (IELTS) or 600 (TOEFL).

Applicants will normally possess a first degree in a science discipline (2:1 or 1st), medical, or nursing qualification (or an equivalent qualification) from a University recognised by Queen Mary College. Clinical candidates should generally have worked for one year after registration. 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.

All MSc applicants must provide details of their experience since graduation. Applicants for part time education must provide details of the range of services available in their Unit for laboratory, clinical opportunities for the research project. In addition a written undertaking from their Head of Department is required to confirm that adequate time and facilities will be made available to the applicant to allow successful completion of the course. All students will be assigned a local supervisor to be appointed with the prior agreement of Queen Mary University of London.

The course is governed by the Queen Mary College regulations on Equal Opportunities.

### Quality Assurance Mechanism

Include details of: SSLC meetings, student feedback mechanisms, personal tutor arrangements, programme induction, programme review and monitoring.

An induction course will be held in the first week. Two students will be nominated as SSLC representatives and shall report to the course director on issues at any time. Formal SSLC meetings shall take place once each semester as part of the MSc Board meetings. Each student shall be allocated a personal tutor. The MSc Board shall meet every semester for programme review. Students will complete a review form after every semester that will include each Module.

The WHRI has a dedicated Management structure for the day to day running of the course, and for student interfacing.

Student misconduct will be covered by Queen Mary College Regulations.

The MSc Board and Programme Committee will incorporate student feedback as required, as well as employer and Alumnus feedback after the students enter the workplace, to ensure currency and viability of the programme.

### Programme-specific Assessment Regulations (if applicable)

In the case of programmes that deviate / do not comply with the Academic Regulations further information regarding the nature of any difference and/or deviation should be stipulated in detail.

N/A

### Employers Links

Please provide details of any links with employers e.g.

- Details of advisory panels that include current or potential employers;
- Organisations that regularly employ graduates from this programme and the roles that graduates undertake.
- Student prizes donated by organisations that may offer employment to graduates from this programme.

If there are no links with employers consider the learning outcomes and transferable skills and explain how these might be used to inform employers about the qualities and skills a graduate from this programme might be expected to have.

Graduates will be fully qualified to specialize in musculoskeletal research, a proportion continuing to undertake PhD or enter research, and others to specialize in clinical rheumatology and become consultants.

Graduates will be able to demonstrate a high level of knowledge and skill in musculoskeletal science, especially in the field of rheumatology, that will be recognized by employers seeking a quality assurance of professionalism. They will possess autonomy in professional practice and be responsible for themselves and others. They will be confident and autonomous in problem solving, and be able to make professional use of others in support of self directed learning. They will be able to engage confidently in academic and professional communication with others in their field, and clarify group tasks making use of the capacities within the group. They will be able to handle and negotiate conflict with confidence.

Technically they will be able to perform with precision and effectiveness, and deploy appropriate skills, plan and discuss strategies and tactics.

Students will be supported in their career options, and they will also be supported through networking with other like minded people who undertake the course. There will be a strong networking opportunity within the faculty, as well well as between students in this and the other MSc courses run within the Institute. High performing students may be recommended for PhD studentships.

## Programme Specification Approval

Programme Title: MSc Musculoskeletal Sciences, MSc Musculoskeletal Clinical Sciences

**Person completing Programme Specification**

Dr Michael Seed

**Person responsible for management of programme**

Dr Michael Seed, Dr F Dell'Accio

**Date Programme Specification produced/amended  
by School or teaching and learning committee**

5 Apr 2011

**Date Programme Specification approved by  
Programme and Module approval Board**

27 Apr 2011