

PROGRAMME SPECIFICATION



1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	Master of Science
4	Programme Title	M.Sc. in Medical Sciences
5	Programme Code	5184F
6	Programme Accreditation	Not applicable
7	QAA Subject Benchmark(s)	N/A
8	FHEQ Level	7
9	Last updated	9th September 2011

10 Programme Aims

This programme is designed to provide students with a broad, robust education in medical sciences at masters-level. The Master of Science in Medical Sciences Programme has been conceived to provide graduates in science, medicine and dentistry with a flexible education and training opportunity. Students will:

1. Study diverse aspects of medical sciences in which there is the appropriate expertise in the Faculty of Medical Sciences through structured, taught modules. Students will acquire advanced knowledge and critical awareness in different areas of medical sciences.
2. Acquire knowledge and develop understanding of aspects of medical sciences research practice and of relevant legal, ethical and safety considerations.
3. Develop experience of hypothesis-led medical research endeavour through personal involvement in a student-selected dissertation, during which students will engage in research, analysis and presentation of research findings and presentation of scientific hypotheses, data and their interpretation in the context of current scientific literature.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.

Knowledge and Understanding

On completion of the programme students should have acquired:

- A1** Systematic knowledge and understanding in five different areas of current medical science at masters-level.
- A2** Critical awareness and understanding of the medical scientific method.
- A3** Knowledge and understanding of legal, ethical and practical aspects of medical scientific research practice in the 21st century.
- A4** In-depth knowledge and appreciation of current research, opinion and learning in a student-selected area of medical science.

Teaching and Learning Methods

A1 These areas of knowledge and understanding will be achieved primarily through delivery of subject-focussed, 20 credit taught modules. Formal teaching is mainly *via* didactic lectures but includes seminars, tutorials and practical classes. Formal teaching is augmented by independent study facilitated by provision of recommended reading material and on-line support material on Blackboard. Learning is developed further through in-course assessed assignments.

A2 This area of knowledge and understanding is addressed throughout the programme *via* all of the taught modules as described in **A1** and is reinforced during the dissertation module through discussion with the academic supervisor and other appropriate individuals.

A3 This area of knowledge and understanding is introduced specifically *via* a focussed, structured 20 credit taught module, MMS8101. Formal teaching *via* didactic lectures is augmented by seminars, tutorials and by independent study facilitated by provision of recommended reading material and on-line support material on Blackboard. Learning is developed further through in-course assessed on-line practical exercises and preparation of an oral and a written assessed assignment.

A4 In-depth knowledge and understanding of current medical scientific research, opinion and learning will be taught during the student-selected dissertation module, MMS8199. Students will pursue their own hypothesis-led research in the context of current knowledge throughout the dissertation module. Learning will be guided and reinforced by interaction with the project supervisor and by preparation of the student's findings for oral and written presentation.

Assessment Strategy

A1 This area of knowledge and understanding will be assessed through in-course written or oral assignments and by unseen, written examination.

A2 This area of knowledge and understanding will be assessed by in-course written or oral assignments and by written examination. Further evaluation will occur as part of the student's overall dissertation assessment.

A3 This area of knowledge and understanding will be assessed *via* on-line practical exercises, a written assignment and an oral presentation.

A4 In-depth knowledge and understanding of current medical scientific research, opinion and learning will be evaluated by assessment of oral presentations and by examination of a written dissertation. Additionally, this area of knowledge will be evaluated throughout the dissertation module by the project supervisor.

Intellectual Skills

On completion of the programme students should:

B1 Have developed capability to acquire advanced-level knowledge of current medical sciences in an inquisitive fashion through interrogation of available scientific resources with appropriate guidance.

B2 Be able to develop and formulate strategies to further medical scientific knowledge with consideration of appropriate legal, ethical, practical and statistical considerations.

B3 Have acquired the faculty to formulate a medical scientific hypothesis, to define appropriate aims, to pursue logically the defined aims to address their hypothesis and to analyse and discuss their research findings in the context of current medical scientific knowledge *via* oral and written presentation.

Teaching and Learning Methods

B1 This skill will be developed through the encouragement of student-directed learning during the taught modules. This skill will be reinforced during the preparation by the student of a literature review around the dissertation topic and enhanced further during interaction with the dissertation supervisor and preparation of the final oral and written presentations of the dissertation findings.

B2 These skills will be taught *via* a focussed, structured 20 credit taught module during the second semester and developed by the student during interactive tutorials and in the preparation of assigned assessments. They will be reinforced during the dissertation module through discussion with the academic supervisor and other appropriate individuals.

B3 These skills will be presented formally during a 20 credit taught module during the second semester and will be developed by the student during interactive tutorials and in the preparation of assigned assessments. They will be honed throughout the dissertation module.

Assessment Strategy

B1 This skill will be assessed by in-course assignments, by unseen, written examination and by the dissertation supervisor.

B2 These skills will be assessed by on-line practical assessments and by examination of the student's oral and written presentations of their assignments and dissertation findings.

B3 These skills will be assessed during the dissertation module by the dissertation supervisor and formally by examination of an oral presentation and of the written dissertation.

Practical Skills

On completion of the programme students should:

C1 Be able to design appropriate practical strategies to address specific medical science research questions.

C2 Have acquired masters-level capability to analyse and interrogate scientific data and to assess its biological and statistical significance.

C3 Have acquired practical research skills appropriate to their selected medical sciences dissertation topic.

Teaching and Learning Methods

C1 This skill will be introduced during a 20 credit, taught module, Medical Research in the 21st Century which is delivered in the second semester and will be reinforced during the dissertation module through discussion with the academic supervisor and other appropriate individuals. Students will practise this skill during the preparation of the assessed assignments for the 20 credit taught module and during the dissertation module.

C2 These skills will be taught during the subject-based taught modules and *via* the 20 credit, taught module, MMS8101 Medical Research in the 21st Century which is delivered in the second semester and will be reinforced during the dissertation module. Students will practise this skill during the preparation of the assessed assignments for the 20 credit taught module and during the dissertation module

C3 Aspects of these skills will be introduced formally during the 20 credit taught module which is delivered in the second semester and they will be practised throughout the dissertation module.

Assessment Strategy

C1 This skill will be assessed by in-course, on-line practical assessments, an assessed oral presentation and an assessed written assignment, by the dissertation supervisor and by examination of the student's oral and written presentation of their dissertation findings.

C2 These skills will be assessed by on-line practical assessments, an assessed oral presentation and an assessed written assignment, by the dissertation supervisor and by examination of the student's oral and written presentation of their assignments and dissertation findings.

C3 These skills will be assessed during the dissertation module by the dissertation supervisor and formally by examination of an oral presentation and of the written dissertation.

Transferable and Key Skills

On completion of the programme students should:

D1 Have developed effective oral and written communication skills.

D2 Have acquired skills in the use and interrogation of various information resources.

D3 Have established or improved their ability to organise and prioritise work.

D4 Be capable to work independently.

D5 Be cognisant of the importance of meeting defined deadlines

D6 Have enhanced reflective skills and ability to identify appropriate career pathways

Teaching and Learning Methods

D1 This skill is taught by formal lecture and developed throughout the Programme *via* assessed assignments with appropriate constructive feedback.

D2 This skill is taught by guidance with appropriate reference material during taught modules and by individual guidance during the dissertation module and developed by the students throughout the course.

D3 These skills are taught and learnt throughout the Programme and during the assignments and the dissertation module.

D4 The Programme is designed deliberately to encourage independent learning and independent work is necessitated by the dissertation module.

D5 Assessment deadlines which are defined throughout the Programme are adhered to strictly to develop and reinforce the importance of this skill.

D6 These skills are developed throughout the Programme.

Assessment Strategy

D1 This skill is assessed by in-course assignments and by examination of oral presentations and a written dissertation.

D2 This skill is assessed by in-course assignments, by the dissertation supervisor and by examination of oral presentations and a written dissertation.

D3 These skills are assessed during the Programme by the student's ability to demonstrate appropriate prioritisation of work and during the dissertation module.

D4 Independent learning and independent work is necessitated by the structure of the Programme and is reinforced during the dissertation module.

D5 Assessment deadlines defined throughout the Programme are adhered to strictly with penalties imposed for missed deadlines.

D6 These skills will be assessed in part by the dissertation supervisor.

12 Programme Curriculum, Structure and Features

Basic structure of the Programme

The M.Sc. in Medical Sciences Programme is a broad, full-time, level 7, taught programme that has a modular structure delivered over three semesters. Students study modules with a total value of 180 credits.

- In the first semester, students select three 20 credit taught subject modules from the choice below:

MMB8002 Current Research Trends in Musculoskeletal Disease
MMB8005 Experimental Medicine & Therapeutics
MMB8006 Drug Discovery & Development
MMB8008 Cell Cycle Control & Cell Signalling in Health & Disease
MMB8009 Clinical Epidemiology
MMB8010 Cognitive Neuroscience & Psychiatric Illness
MMB8011 Biology of Ageing
MMB8014 Genetics of Common Disease
MMB8015 Applied Immunobiology
MMB8017 Nanomaterials in Healthcare Technologies
MMB8019 Sensory Systems & Neuroimaging
MMB8020 Scientific Basis of Neurological Disease
MMB8022 Stem Cells & Regenerative Medicine
MMB8023 Systems Biology
MMB8025 Transplantation Sciences
MMB8029 Medical Genomics
MMB8030 Genetic Medicine
MMB8031 Developmental Genetics
MMB8032 Toxicology

Each taught subject module is assessed by a combination of formative and summative in-course assessment and by a written examination.

It is possible that some module combinations may not be offered due to limitations caused by two modules being concurrent in the timetable or to availability or to demand.

Other modules offered currently in the Master by Research Programmes in the Faculty of Medical Sciences will be available at the discretion of the Degree Programme Director of the proposed Master of Science in Medical Sciences

- In the second semester, students take two compulsory 20 credit taught subject modules offered currently in the Master by Research Programmes in the Faculty of Medical Sciences.

MMS8104 Ageing and Health
MMS8107 Cancer Studies

All students take, in addition, a third compulsory 20 credit module, MMS8101 'Medical Research Practice in the 21st century'.

All students review literature relevant to their dissertation topic in preparation for the 'Medical Sciences Dissertation' Module.

- In the third semester, all students work full-time on the core 60 credit module, MMS8199 'Medical Sciences Dissertation'.

Key features of the programme (including what makes the programme distinctive)

Newcastle is recognised as a world-class, research-intensive university of the North East of England that delivers teaching and facilitates learning of the highest quality. Newcastle University is in a strong position to offer an attractive Master of Science in Medical Sciences Programme because of the high academic profile of the Faculty of Medical Sciences with its expertise in clinical and translational medicine and its clinical trials and biobanking facilities.

The major differentiating factors from other taught masters programmes are:

I. Strengths of course delivery

A major strength of the Master of Science in Medical Sciences Programme is the clinical and translational nature of the course. Embedded as it is in the Faculty of Medical Sciences, the taught modules will be delivered by a complementary mixture of scientists and clinicians. Supervision of the new dissertation module, Medical Sciences Dissertation, will be in a diverse range of departments which reflect the expertise in Newcastle University. The medical aspects of the course differentiate it from courses offered by many other British Universities that are orientated more towards biomedical sciences.

II. Strengths of course content

A second major strength of the Master of Science in Medical Sciences Programme is the breadth of the course. Other Master of Science programmes rely on education through research projects with necessitated associated lack of breadth. The Master of Science courses taught by some Universities offer a more limited choice of taught modules. Other courses require their students to narrow the scope of their course prior to registration.

III. Strengths of Newcastle location

A further strength of Newcastle lies in its geographical location. Many students will choose to study at Newcastle University in part because of personal association with the region, because of its reputation for a vibrant culture or because of its proximity to unspoilt regional landscapes. Students from overseas may be accompanied by relatives who will register on other courses of excellence offered by Newcastle University such as in engineering, sustainable development or business studies.

Programme regulations (link to on-line version)

<http://www.ncl.ac.uk/regulations/programme/>

13 Criteria for admission

Entry qualifications

An honours degree, or international equivalent, in a science or related discipline or a degree in medicine or dentistry. For science graduates, an upper-second-class degree is the standard minimum entry requirement. Exemption may be made only if justified by exceptional circumstances. Two academic references are required.

Admissions policy and selection tools

Selection is by academic ability and relevant education as demonstrated *via* the E2R electronic application system and must be supported by appropriate academic references. It will not be necessary to interview applicants.

Non-standard Entry Requirements

At the discretion of the Degree Programme Director

Additional Requirements

None

Level of English Language capability

Applicants whose first language is not English require a minimum of IELTS 6.5 for each sub-section, TOEFL 90 if Internet-based or 577 if paper-based or equivalent. Applicants with lower English language qualifications may be accepted if they follow a pre-sessional English course at our INTO Newcastle University Centre which provides tuition to help students meet the University's English language requirements.

14 Support for Student Learning

The Student Services portal provides links to key services and other information and is available at: <http://www.ncl.ac.uk/students/>

Induction and orientation

During the first week of the first semester students attend an induction and orientation programme. New students will be given a general introduction to University life and the University's principle support services and general information about the Graduate School and their programme, as described in the Degree Programme Handbook. Students will be given detailed programme information and the timetable of lectures, seminars, tutorials and practical sessions. The International Office offers an additional induction programme for overseas students.

Study skills support

Training in professional and key skills including study skills is integral to the programme as outlined above. In addition, all students may attend optional seminars provided through the Faculty of Medical Sciences Research Skills Development Programme.

Numeracy support is available through Maths Aid. Further details are available at: http://www.ncl.ac.uk/library/news_details.php?news_id=159

Help with academic writing is available from the Writing Centre. Details of which can be obtained from Alicia.Cresswell@ncl.ac.uk

Academic support

The initial point of contact for a student is with a lecturer or module leader, or their personal tutor for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff-Student Committee, and or at the Curriculum Committee.

Pastoral support

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. In addition, the University offers a range of support services, including one-to-one counselling and guidance or group sessions and workshops on a range of topics, such as emotional issues, stress and anxiety, student finance and budgeting and disability. There is specialist support available for students with dyslexia and mental health issues. Furthermore, the Union Society operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues.

<http://www.ncl.ac.uk/postgraduate/support/welfare>

Support for students with disabilities

The University's Disability Support Service provides help and advice for disabled students at the University and those considering coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support; a resources room with equipment and software to assist students in their studies.

<http://www.ncl.ac.uk/postgraduate/support/disability.phtml>

Learning resources

The University's main learning resources are provided by the Robinson and Walton Libraries for books, journals, online resources, and Information Systems and Services, which supports campus-wide computing facilities.

<http://www.ncl.ac.uk/postgraduate/support/facilities>

All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on behalf of Newcastle University. Where appropriate, in-session language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange.

15 Methods for evaluating and improving the quality and standards of teaching and learning

Module reviews

All modules are subject to review by the Curriculum Committee and the Graduate School Committee. Changes to, or the introduction of new, modules are considered by the Graduate School Committee and or the School Teaching and Learning Committee. Student opinion is sought at the Staff-Student Committee and at the Curriculum Committee. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

Programme reviews

The Graduate School Committee monitors and reviews the degree programme annually and reports to Faculty Teaching, Learning and Student Experience Committee. Faculty Teaching, Learning and Student Experience Committee takes an overview of the Programme and reports to the University Teaching and Learning Committee.

External Examiner reports

External Examiner reports are considered by the Graduate School Committee. The Degree Programme Director responds to these reports and the response is considered by the Faculty and University Teaching and Learning Committees. External Examiner reports are shared with student representatives, through the Staff-Student Committee.

Student evaluations and feedback

All modules, and the degree programme, are evaluated through student questionnaires which are considered by the Curriculum Committee and the Graduate School Committee. The results from student surveys are considered as part of the Annual Monitoring and Review of the Programme and any matters arising are considered at Programme and Graduate School level. Student opinion is encouraged by module leaders and at the Staff-Student Committee.

Faculty and University Review Mechanisms

The programme is subject to the University's Internal Subject Review process. Every five years degree programmes in each subject area are subject to periodic review. Full description of current University procedures are detailed at:

<http://www.ncl.ac.uk/quilt/resources/monitoring/internal.htm>

<http://www.ncl.ac.uk/quilt/assets/documents/qsh-isr-policy.pdf>

Accreditation reports

Not applicable

Additional mechanisms

Not applicable

16 Regulation of assessment

Pass mark

The pass mark is 50%

Course requirements

Progression is subject to the University's Masters Degree Progress Regulations, Taught and Research and Examination Conventions for Taught Masters Degrees. Limited compensation up to 40 credits of the taught element and down to a mark of 40% is possible and there are reassessment opportunities, with certain restrictions.

The Programme employs the common University marking scheme, which is specified in the Taught Postgraduate Examination Conventions, namely:

Summary description applicable to postgraduate masters programmes

<50	Fail
50-59	Pass
60-69	Pass with Merit
70 or above	Pass with Distinction

Role of the External Examiner

An External Examiner, a distinguished member of the subject community, is appointed by the Faculty Teaching, Learning and Student Experience Committee, following recommendation from the Board of Studies. The External Examiner is expected to:

- i. see and approve assessment papers
- ii. moderate examination and coursework marking
- iii. attend the Board of Examiners
- iv. report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus: <http://www.ncl.ac.uk/postgraduate/>

The School Brochure <http://www.ncl.ac.uk/marketing/services/print/publications/ordering/>

Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

The Degree Programme Handbook

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

Mapping of Intended Learning Outcomes onto Curriculum/Modules

Module	Type	Intended Learning Outcomes			
		A	B	C	D
Semester 1					
MMB8002	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8005	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8006	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8008	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8009	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8010	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8011	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8014	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8015	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8017	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8019	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8020	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8022	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8023	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8025	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8029	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8030	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8031	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMB8032	Optional	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
Semester 2					
MMS8104	Compulsory	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMS8107	Compulsory	A1, A2	B1	C2	D1, D2, D3, D4, D5, D6
MMS8101	Compulsory	A2, A3	B2, B3	C1, C2	D1, D2, D3, D4, D5, D6
Semester 3					
MMS8199	Core	A2, A3, A4	B1, B2, B3	C1, C2, C3	D1, D2, D3, D4, D5, D6