PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	Master by Research (MRes)
4	**Programme Title**	Medical & Molecular Biosciences
5	**UCAS/Programme Code**	4807F MRes 4812F MRes (Nanomedicine) 4813F MRes (Immunobiology) 4814F MRes (Ageing & Health) 4816F MRes (Cancer Research) 4817F MRes (Stems Cell & Regenerative Medicine) 4815F MRes Systems Biology 4820F MRes Toxicology (not running in 2008/09) 4818F MRes (Neuroscience) 4819F MRes (Medical Biotechnology & Enterprise)
6	**Programme Accreditation**	N/A
7	**QAA Subject Benchmark(s)**	N/A
8	**FHEQ Level**	Masters
9	**Date written/revised**	26th February 2008

10 Programme Aims

This programme has been designed to provide students with opportunities to develop a scholarly approach to a chosen area of research in medical & molecular biosciences practiced in the faculty. The programme aims to help students acquire the necessary expertise for effective day-to-day management and reporting of research activities in the context of their own roles, responsibilities and interests.

i) to enable students to gain an advanced knowledge and understanding of self-selected areas of medical and molecular biosciences.

ii) to enable students to undertake a general training in an area of research in a leading research laboratories either within the University or in local industry.

iii) to encourage the students to develop a range of professional and key skills which will enable them to engage in teaching and/or research at an advanced level in higher education or in a senior professional capacity in other fields of employment.

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 completing the programme students will be able to:

A1 demonstrate an advanced knowledge in self selected areas of special interest or professional relevance

A2 demonstrate an appropriate knowledge of the principles of safe working practice that under-pin their chosen area of study

A3 demonstrate an appropriate knowledge of the ethical principles that under-pin their chosen area of study

Teaching and Learning Methods

Students undertaking the MRes select three subject knowledge modules from a wide range of options for study. In addition they are expected to complete three smaller compulsory modules that cover medical statistics and bioethics. Additional training in critical appraisal, presentation skills and library and IT skills is offered to all students. Module selection is entirely in the students hands (with guidance and time-table permitting). Students select areas to study that are within their own areas of interest and that are key to developing a better understanding of their project. A1 is addressed through a mixture of lectures, small group discussion and classroom exercises, augmented by independent study, directed by the provision of reading lists, resource materials and by individual tutorial support, with feedback on in-course assignments. A2 is addressed in the research project and A3 in the compulsory bioethics module early in semester 2.

Assessment Strategy

Knowledge and understanding are assessed through a range of methods including in-course essays, MCQ tests, student presentations, data interpretation tests, critical appraisal of published works and conventional unseen examinations. Formative feedback is given for all in-course assessment. A2 is assessed by the project supervisor both on a day-to-day basis and through regular interaction with research staff. Guidance is provided at all times and the students understanding is assessed summatively as part of the students overall project assessment. A3 is assessed by written essay.

Intellectual Skills

On completing the programme students will be able to:
B1 source and evaluate current research evidence in medical and molecular biosciences
B2 formulate arguments and engage in academic debate about current research and research practice in medical and molecular biosciences
B3 critically appraise and contribute to the body of knowledge about current research in medical and molecular biosciences
B4 discuss ethical issues in medical and molecular biosciences research and the need for ethical approval in research

Teaching and Learning Methods

All of these skills are developed through the mixture of lectures, small group discussion and classroom exercises in semester 1 above and are further developed during the research project through active participation as a member of the research group where there are additional (less formal) activities including: journal clubs, regular research seminars, group meetings etc. Throughout the programme much emphasis is placed on independent study and guided reading. In-course work is assessed and formative feedback is given.

Assessment Strategy

Intellectual skills are assessed in two parts. First: along with knowledge and understanding where a range of methods are employed depending on the modules selected including: in-course essays; MCQ tests; student presentations; data interpretation tests; critical appraisal of published works and conventional unseen examinations. Second: there is further substantial assessment of the research project through a submitted dissertation and an oral presentation.

Practical Skills

On completing the programme students should be able to:
C1 identify practical and methodologically robust design solutions to selected research questions in medical and molecular biosciences
C2 select and apply relevant statistical techniques in an appropriate research setting
C3 identify key safety issues and procedures related their own research project

Teaching and Learning Methods

Practical skills C1, C2 and C3 are achieved largely during the research project. Work on the project leads to the practise and development of these skills. Project learning is informed by independent guided reading necessary for the production of a dissertation and oral presentation. Students receive tutorial guidance from their supervisors and feedback where relevant.

Assessment Strategy

These skills are assessed by the project supervisor who gives an independent mark for student's ability/application and effort; through an oral presentation and through an 8000 word dissertation, which is assessed by an external examiner and an internal examiner.

Transferable/Key Skills

On completing the programme students should be able to:

D1 communicate effectively orally and in writing
D2 use library and other information sources skilfully and appropriately
D3 plan, organise and prioritise work activities in order to meet deadlines
D4 work independently

Teaching and Learning Methods

These skills are developed through the requirement to carry out and produce written assignments for study modules and the research project. Tutorial guidance with the support of liaison librarians aims to enhance these skills. The course is deliberately designed in a way that requires students to address D1 to D4 throughout its duration.

Assessment Strategy

These skills are formatively assessed through the written assignments and dissertation. D2 and D4 are not summatively assessed independently, although they are indirectly assessed through the successful production of written assignments and the dissertation.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

This broad-based full-time research programme has a modular structure. M level (masters' level) academic credits are accrued for each module completed successfully. Students undertake 180 credits in total: 100 credits are assigned to the research project; 20 credits to two compulsory modules (medical statistics, bioethics and safety) and 60 credits to three subject choice modules. In addition critical appraisal, presentation and library and IT skills training is offered to all students.

Research Project: The research projects is the largest single component of the degree programme at 100 credits. Projects are selected by students with help and guidance as required. Projects run for 26 weeks and including a week devoted to project preparation; a two week allowance for a break at Easter and a three week period set aside for writing up**.**

Subject Knowledge Modules: All modules are 20 credits and students have a free choice (subject to module viability, timetabling and some guidance). Modules available are:

SUR8014 Applied Immunobiology
CMS8013 Biogerontology
CLB8020 Cancer Studies
PGY8003 Cell Signalling Pathways in Health & Disease
CMS8003 Clinical Epidemiology
CMS8001 Clinical Measurement & Imaging
NEU8002 Cognitive Neuroscience
MMB8001 Current Research Trends in Musculoskeletal Disease
PGY8007 Genetic Basis of Common Disease
MMB8002 Medical Biotechnology & Enterprise
SUR8015 Nanomaterials in Healthcare Technologies
MEC8012 Nanoscale fabrication & Design
CMB8001 Protein Structure & Function
NEU 8003 Sensory Systems & Imaging
NEU8001 Scientific Basis of Neurological Disease

CMB8002 Techniques in the Molecular Biosciences
PGY8005 Transplantation Sciences
CMS8015 Stem Cells & Regenerative Medicine
CMS8016 Systems Biology

Professional/Key Skills: Both modules are 10 credits and are compulsory.

MED8016 Bioethics & Safety
MED8019 Statistical Techniques in Medical Research

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

The key feature of this programme is student choice:

This is a unique Masters programme with the exception of 20 credits students are free to select areas of study that suit their individual needs. Thus students can chose three from a list of 17 subject choice modules.

Projects are self-selected by the students and map to areas of research excellence within the Faculty of Medical Sciences. Thus, projects offered on this course form part of on-going research programmes within the Faculty and students have an opportunity to work along side 5 and 5* RAE rated researchers/groups.

Students may opt to graduate in one the six nominated specialist areas (or strands) of the MRes (listed above) or to graduate plain MRes in Medical and Molecular Biosciences.

It may be possible to select alternative modules from other post-graduate Masters courses in the Faculty at the discretion of the Degree Programme Director.

Programme regulations (link to on-line version)

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

13 Criteria for admission

Entry qualifications

A minimum second class honours degree, or equivalent qualification, in a science or related discipline.

Admissions policy/selection tools

Selection is by electronic application (E2R), supported by appropriate references.

Non-standard Entry Requirements

Successful completion of the fourth year of the Batchelor of Medicine and Batchelor of Surgery *or* Batchelor of Dental Surgery programme or equivalent.

Additional Requirements

All applicants must be actively involved in clinical education in the UK for the duration of the course.

Level of English Language capability

IELTS minimum level 6.5 in all domains is required. Applicants with IELTS of 6.0 may be accepted provided they undertake a compulsory 10 week pre sessional English language course at the University

14 Support for Student Learning

All students are registered in the graduate school which has an excellent infrastructure to support postgraduate students and their learning.

Induction

All students attend a course introduction where they are issued with the degree programme handbook detailing the course curriculum, degree regulations, assessment methods and sources of help and support. Following this they attend a reception which offers a chance to meet the programme team and ask questions and to socialise with fellow students. During the first week of the programme students are introduced to their module options, the Walton Library, a computer cluster and may attend an optional session on careers.

Study skills support

Training in professional and key skills including study skills is integral to the programme as outlined above.

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 can be obtained from Alicia.Cresswell@ncl.ac.uk

Academic support

Students benefit from a strong support team headed by the Degree Programme Director including deputies with responsibility for recruitment, projects, liaison with industry, advise on medical careers and advise for international students. The initial point of contact for a student is with a lecturer or module leader, their tutor or the course administrator (see below). Thereafter the Degree Programme Director or appropriate Deputy Degree Programme Director may be consulted. Issues relating to the programme may be raised at the Staff Student Committee and at the Curriculum Committee (sub-committee of Graduate School Board of Studies) both of which have nominated student representation.

Pastoral support

All students are assigned a personal tutor whose responsibility is to monitor the academic performance. Details of the personal tutor system can be found at http://www.ncl.ac.uk/undergraduate/support/tutor.phtml
In addition the University offers a range of support services, including the Student Advice Centre, the Counselling and Wellbeing team, the Mature Student Support Officer, and a Childcare Support Officer, see http://www.ncl.ac.uk/undergraduate/support/welfare.phtml

Support for students with disabilities

The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of 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 arrangements; a resources room with equipment and software to assist students in their studies. For further details see http://www.ncl.ac.uk/disability-support/

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, see

http://www.ncl.ac.uk/undergraduate/support/acfacilities.phtml

The University Computing Service provides comprehensive computing facilities for all students at many open access sites on campus, including provision for disabled access, with regular software upgrades. There is also remote access on site and at the halls of residence to the Library catalogue and other services. All schools and most research groups have provision for computer access for postgraduate students.

The graduate school offers a student learning space with dedicated on-line computer facilities, a number of study rooms and social space for interaction with other postgraduate students.
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-sessional 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 student evaluation questionnaires which are considered annually by the Curriculum Committee. Major changes to, or the introduction of new, modules are considered at the Curriculum Committee, Board of Studies (Graduate School) and are subject to approval by the Faculty Teaching and Learning Committee.

Research Projects
All research projects go through an approval process involving several members of the MRes team including the DPD (or nominee) and deputy DPD – projects. Continual monitoring by individual supervisors is maintained and scrutinised by the deputy DPD – projects at all stages via email.

Programme reviews
The Curriculum Committee and Board of Studies (Graduate School) conduct an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

External Examiner reports
External Examiner reports are considered by the Curriculum Committee and / Board of Studies (Graduate School). Responses to these reports are processed through Faculty Teaching and Learning Committee and reported to University Teaching & Learning Committee. Responses are shared with the External Examiners and the External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

Student evaluations
All modules, the project and the degree programme as a whole are subject to review by student evaluation questionnaires. Informal student evaluation is also obtained at the Staff Student Committee and Curriculum Committee..

Mechanisms for gaining student feedback
Student feedback is obtained through module and programme review and discussed at Staff Student Committee, Curriculum Committee. Informally feedback may be gained via meetings with the DPD (on request) or via tutors.

Faculty and University Review Mechanisms
The programme is subject to the University's Internal Subject Review process, see http://www.ncl.ac.uk/aqss/qsh/internal_subject_review/index.php

Additional mechanisms
None at present.

16 Regulation of assessment

Pass mark
The pass mark for all modules and the project is 50%. However, University regulations allow for a student to pass the degree even if one module is failed, provided that the overall final degree mark is 50% or greater and provided: no single mark is below 40%, marks less than 50% are compensated in the assessment of modules with a total value of no more than 20 credits, and no such compensation is permitted for core modules or the project.

Common Marking Scheme
The University employs a common marking scheme, which is specified in the Postgraduate Examination Conventions Research, namely:

Summary description applicable to postgraduate Masters programmes		**Summary description applicable to postgraduate Certificate and Diploma programmes**	
<50	Fail	<50	Fail
50-59	Pass	50 or above	Pass
60-69	Pass with Merit		
70 or above	Pass with Distinction		

Course requirements
Progression is subject to the University's Masters Degree Progress Regulations, Research (http://www.ncl.ac.uk/calendar/university.regs/tpmdepr.pdf) and Examination Conventions for Research Masters Degrees (http://www.ncl.ac.uk/calendar/university.regs/tpmdeprexamconv.pdf). There are reassessment opportunities, with certain restrictions.

Marking Scheme
Grading descriptors are available in the degree programme handbook for all assessed work. Final degree classification is according to the Examination Conventions for Research Masters Degrees (http://www.ncl.ac.uk/calendar/university.regs/tpmdeprexamconv.pdf).

Students who are ineligible for the award of a Masters degree but who have successfully complete 120 credits of the programme may qualify for the award of a postgraduate Diploma and students who are ineligible for the award of a Diploma but who have successfully complete 60 credits of the programme may qualify for the award of a postgraduate Certificate.

Role of the External Examiners
For each individual students an External Examiner who is a distinguished member of the biosciences community, is appointed by Faculty Teaching and Learning Committee after recommendation from the Board of Studies to consider the students research project. The External Examiner is expected to evaluate and mark the student's project dissertation and provide a detailed (brief) written report to the University. An External Examiner may be asked to consider more than one project.
In addition a second External Examiner is who is also a distinguished member of the biosciences community, is appointed by Faculty Teaching and Learning Committee after recommendation from the Board of Studies to:

- See and approve examination papers
- Moderate examination and coursework marking
- Attend the Board of Examiners
- Report to the University on the standards of the programme

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

The University Prospectus (see http://www.ncl.ac.uk/postgraduate/)

The Faculty Graduate School Websites (see http://medical.faculty.ncl.ac.uk/postgraduate/home/Page1a.html). and http://medical.faculty.ncl.ac.uk/postgraduate/prospective/Page2.html

The University Regulations (see http://www.ncl.ac.uk/calendar/university.regs/)

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.

Annex 1

Mapping of Intended Learning Outcomes onto Curriculum/Modules

Intended Learning Outcome	Module codes (Compulsory in Bold)
A1	CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015
A2	**MED8099**
A3	**MED8016**
B1	CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015; **MED8099;**
B2	CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015; **MED8099**
B3	CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015; **MED8099**
B4	**MED8016**
C1	CMS8001; CMB8002; MEC8012; SUR8015; **MED8099**
C2	**MED8019**
C3	**MED8099**
D1	CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015; **MED8099; MED8016**
D2	CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015
D3	**Primarily MED8099,** but also CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015
D4	**Primarily MED8099,** but also CLB8020; CMB8001; CMB8002; CMS8001; CMS8003; CMS8013; CMS8015; CMS8016; MEC8012; MMB8001; MMB8002; NEU8001; NEU8002; NEU8003; PGY8003; PGY8005; PGY8007; SUR8014; SUR8015

Annex 2

		Intended Learning Outcomes			
Module	**Type**	**A**	**B**	**C**	**D**
CLB8020	Optional	1	1; 2; 3		1; 2; 3; 4
CMB8001	Optional	1	1; 2; 3		1; 2; 3; 4
CMB8002	Optional	1	1; 2; 3		1; 2; 3; 4
CMS8001	Optional	1	1; 2; 3		1; 2; 3; 4
CMS8003	Optional	1	1; 2; 3		1; 2; 3; 4
CMS8013	Optional	1	1; 2; 3		1; 2; 3; 4
CMS8015	Optional	1	1; 2; 3		1; 2; 3; 4
CMS8016	Optional	1	1; 2; 3		1; 2; 3; 4
MEC8012	Optional	1	1; 2; 3		1; 2; 3; 4
MMB8001	Optional	1	1; 2; 3		1; 2; 3; 4
MMB8002	Optional	1	1; 2; 3		1; 2; 3; 4
NEU8001	Optional	1	1; 2; 3		1; 2; 3; 4
NEU8002	Optional	1	1; 2; 3		1; 2; 3; 4
NEU8003	Optional	1	1; 2; 3		1; 2; 3; 4
PGY8003	Optional	1	1; 2; 3		1; 2; 3; 4
PGY8005	Optional	1	1; 2; 3		1; 2; 3; 4
PGY8007	Optional	1	1; 2; 3		1; 2; 3; 4
SUR8014	Optional	1	1; 2; 3		1; 2; 3; 4
SUR8015	Optional	1	1; 2; 3		1; 2; 3; 4
MED8016	Compulsory	3	4		1: 2
MED8019	Compulsory			2	
MED8099	Core	2	1; 2; 3	1; 3	1; 3; 4