

PROGRAMME SPECIFICATION



1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	Master of Science
4	Programme Title	See item 5
5	Programme Code	MSc in Clinical Science (Cardiac Science) 5253P MSc in Clinical Science (Vascular Science) 5254P MSc in Clinical Science (Respiratory and Sleep Science) 5255P* MSc in Clinical Science (Gastrointestinal Physiology) 5256P MSc in Clinical Science (Urodynamic Science) 5257P CPD Clinical Science 6044P
6	Programme Accreditation	Department of Health/Medical Education England Healthcare Science Programme Board
7	QAA Subject Benchmark(s)	N/A
8	FHEQ Level	7
9	Last updated	July 2021

10	Programme Aims
<p>To provide a career framework for healthcare science professionals by providing an education and training programme that is clear and coherent. This will enable the individual to enter a defined healthcare science career. The programme has been developed to meet workforce needs and will ensure flexibility, sustainability and modern career pathways for healthcare scientists, fit to address the needs of future NHS.</p> <p>MSc in Clinical Science (Physiological Sciences) programme will offer an MSc in five specialisms namely:</p> <ul style="list-style-type: none"> i. Cardiac Science ii. Vascular Science iii. Respiratory and Sleep Science* iv. Gastrointestinal Physiology v. Urodynamic Science <p>*Suspended from 2017/18</p>	

11	Learning Outcomes
<p>The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.</p>	
Knowledge and Understanding	
<p>On completing the programme students should have:</p> <p>A1 a systematic understanding of Physiological Sciences and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their specialist area of professional practice;</p>	

<p>A2 an in-depth understanding of the knowledge required to support each work-placed specialism, specifically 'Cardiac Science, Respiratory & Sleep Science, Vascular Science, Clinical Assessment and Investigation, Gastrointestinal Physiology and Urodynamic Science';</p> <p>A3 a systematic understanding of a substantial body of knowledge which is at the forefront of their specialist area of professional practice;</p> <p>A4 a detailed understanding of applicable techniques for research and advanced academic enquiry.</p>
<p>Teaching and Learning Methods</p> <p>A1–A4 are achieved by lectures, seminars and laboratory classes. A2 will be supported initially by an intensive teaching programme of lectures, seminars and group based discussion at Newcastle. Subsequent to this, students will then undertake a series of work-based modules during their clinical rotations which will be supported later by further intensive teaching days and through online learning / discussion boards, therefore enabling students to develop state of the art clinical knowledge and practical skills (see also B1-B5 below). In the cases of A1 and A3, lectures and seminars are also accompanied by practical sessions and visits to the clinical facilities in the local area (North East region). The teaching strategy for A4 includes lectures to set out baseline knowledge, principles and standards, and small group discussions, group exercises and seminars where current knowledge and R&D outputs are presented and examined from a range of perspectives.</p> <p>Students will acquire knowledge through team work, case studies, presentations, and independent study and research. Some modules include short problem solving exercises.</p>
<p>Assessment Strategy</p> <p>Intended learning outcomes regarding knowledge and understanding are assessed based on coursework involving both written and oral communications at the individual or team level. This will include a variety of continuous forms of assessment including essays, problem-solving exercises, laboratory reports and case studies and provide both formative and summative assessment through relevant examples. The virtual learning environment, Canvas, will be used for both formative and summative assessments. The examinations will be held in the traditional format with students attending the University.</p> <p>Closed book examinations will be used as a complementary means of assessing factual knowledge.</p>
<p>Intellectual Skills</p> <p>On completing the programme students should be able to:</p> <p>B1 synthesise key findings and knowledge from across the Clinical Science spectrum, in particular those relating to Physiological Sciences, to enhance patient outcomes and welfare;</p> <p>B2 make informed judgements on complex issues in their specialist field, often in the absence of complete data, and communicate their ideas and conclusions directly, clearly and effectively to specialist and non-specialist audience including patients;</p> <p>B3 undertake applied research and development at an advanced level, contributing substantially to the development of new techniques, ideas, or approaches in their specialist area;</p> <p>B4 critically evaluate the quality of data and information offered from different sources;</p> <p>B5 demonstrate the general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of their specialist discipline, and to adjust the project design in the light of unforeseen problems.</p>
<p>Teaching and Learning Methods</p> <p>Intellectual skills (B1-B5) are developed progressively throughout the programme in modules containing seminars, case studies and as part of their work-based learning.</p> <p>Throughout the programme, students will develop intellectual skills by participating in group discussions, case studies and in their workplace to enhance their (a) analytical and interpretative faculties and (b) ability to formulate objective and coherent arguments.</p>

<p>Work based Clinical Rotations and associated problem based learning exercises are the main method used to enhance intellectual skills related to applying best practice in research and in making judgements to enhance patient welfare and outcomes.</p> <p>Design, execution, statistical analysis and reporting of the final dissertation project enhance the learning of these skills in a focused manner.</p>
<p>Assessment Strategy</p> <p>B1 is assessed through individual and/or group preparation exercises and particularly through the case-led/problem based learning (C/PBL) write up.</p> <p>B1 & B2 are assessed via oral presentations and assessed essays.</p> <p>B1 & B2 are also assessed in certain optional modules by closed book examinations</p> <p>The interactive learning environment, Canvas, will be used for both formative and summative assessments. B3 & B4 are assessed using a range of conventional scientific formats including: preparation of an abstract, a poster, a presentation and a dissertation. The project with all of these assessments tests a range of transferable skills.</p> <p>B5 is by the production of a project proposal, literature review and project dissertation.</p>
<p>Practical Skills</p> <p>On completing the programme students should be able to:</p> <p>C1 identify a wide range of analytical and clinical science methods across the Physiological Sciences discipline but specifically in their own elective specialization;</p> <p>C2 prepare and present information, in both written and verbal formats, to stakeholders (e.g. patients, clinical colleagues, other Health Professionals and the public) with contrasting levels of knowledge and understanding;</p> <p>C3 assemble a body of data, analyse and critically evaluate the data and its source using appropriate statistical and qualitative techniques;</p> <p>C4 work across an interdisciplinary team to maximise patient care and outcomes.</p>
<p>Teaching and Learning Methods</p> <p>Practical Skills (C1-C4) are primarily obtained through coursework, clinical rotations, assignments and the research project.</p> <p>C2 & C3 will be developed through specific components (data handling, statistical and research) which are included in all compulsory modules.</p>
<p>Assessment Strategy</p> <p>The assessment of practical skills (C1-C4) will be based on (a) written assessment (including bibliographies) produced as part of essays, seminar presentations and the final project thesis, (b) data handling and analyses carried out as part of problem solving exercises and the project thesis and (c) presentations to their peer cohort, work place and University supervisors and other stakeholder groups.</p>
<p>Transferable/Key Skills</p> <p>On completing the programme students should be able to:</p> <p>D1 exercise initiative and personal responsibility;</p> <p>D2 make decisions on complex and unpredictable situations;</p> <p>D3 have the learning ability required for continuing professional development;</p> <p>D4 work effectively as a member of teams both subject specific and multi-disciplinary;</p> <p>D5 use effective time and resource management practices.</p>
<p>Teaching and Learning Methods</p> <p>Transferable/Key skills D1-D5 are developed throughout the programme through coursework, student led sessions, clinical visits, clinical rotations, final dissertation and workshops.</p>

<p>Assessment Strategy</p> <p>Key skills D1-D5 are indirectly assessed through formative coursework, team and individual presentations, research papers and the dissertation, including a supervisor's mark for the conduct of the project. Additional formative assessment comes through the workplace supervisor who is asked to comment on the student's progress during the clinical rotations related to modules CVR 8001-9 and 8011-21, as relevant to their specific study pathways, against key skills D1-D5.</p>

12 Programme Curriculum, Structure and Features

Basic structure of the programme

This programme is available as part time study comprising modules to a value of 180 credits, studied over 3 years.

A master's candidate shall study taught modules to a value of 120 credits and project modules to a value of 60 credits. All modules are core.

A group of **“common” core (“Generic”) modules** will be delivered across all specialisms thus providing a common “backbone” to the curriculum.

Broad Framework of national *Modernising Scientific Careers* MSc in Clinical Science (Physiological Sciences) training:

Figure 2: High-Level Framework for MSc Clinical Science

Year 3 Specialist Practice	Healthcare Science Specialist Learning with integrated Professional Practice [30]	Research Project Students would usually begin a work based research project in Year 2 and complete the project in Year 3 [30]
	Specialism	
Year 2 Specialist Practice	Research Methods [10]	Healthcare Science Specialist Learning with integrated Professional Practice [20]
	Research Project Students would usually begin a work based research project in Year 2 and complete the project in Year 3 [30]	
	Generic	Specialism
Year 1 Core Modules	Healthcare Science Integrating science and Professional Practice [20]	Healthcare Science Integrating underpinning knowledge required for each rotational element with Professional Practice [40]
	Generic	Division/Theme

Generic Modules: Common to all divisions of healthcare science

Division/Theme-Specific Modules: Common to a division or theme

Specialist Modules: Specific to a specialism

MSc Clinical Science Route Map: Cardiac, Critical Care, Vascular, Respiratory and Sleep Sciences (CCVRS)			
	Year 1	Year 2	Year 3
	Introduction to Healthcare Science, Professional Practice and Clinical Leadership [20] Introduction to Cardiac, Critical Care, Vascular, Respiratory, and Sleep Science – underpinning knowledge for rotational work based training [40]	Research Methods [10]	
Route map of MSc Clinical Science (CCVRS) with specialisms in Cardiac Science, Critical Care Science, Vascular Science and Respiratory and Sleep Science. In Year 1, trainees begin by following the generic curriculum which spans all divisions (blue) together with some division/theme-specific modules (yellow). In Years 2 and 3, trainees specialise (orange)		Cardiac Science Diagnostic approaches and current treatment of cardiovascular disorders [20] Research Project [30]	Ultrasound Imaging in Cardiac Disease [30] OR Diagnosis and Management of Cardiac Rhythm Disorders [30] Research Project [30]
		Critical Care Science Respiratory and Sleep Science 2 [20] Excludes Sleep Component Research Project in Critical Care Science [30]	Life Support and Emergency Resuscitation [10] Monitoring and Supporting Critically Ill Patients [15] Diagnostic and Therapeutic Techniques in Critical Care [5] Research Project in Critical Care Science [30]
		OR	
		Respiratory and Sleep Science Respiratory and Sleep Science 1 [20] Research Project [30]	Respiratory and Sleep Science 2 [30] Research Project [30]
		OR	
		Vascular Science Ultrasound Science, Haemodynamics and Instrumentation [20] Research Project [30]	Extracranial Arterial (Imaging) [10] Venous [10] Peripheral Arterial (Screening and microvasculature diagnostics) Research Project [30]
Credits			
Generic	20	10	0
Division/Theme	40	0	0
Specialism		50	60
Total	60	60	60
Key features of the programme (including what makes the programme distinctive)			
<p>The programme is designed to provide an all-round education in a number of selected areas of Physiological Sciences in a Healthcare Science setting. The programme is commissioned by Health Education England and accredited by the National School of Healthcare Science to deliver the academic component of the Scientist Training Programme in Physiological Sciences. Teaching will involve a mixture of face-to-face learning and e-learning via Newcastle University's VLE Canvas. Through this medium, students will be able to interact with other students from across the different themes covered in this programme. This will be continued throughout the programme stages. Discussion boards may also include students from a number of different disciplines including students taking the module as standalone CPD (e.g. Medical Registrars, Clinical Trial Managers, Research Nurses), creating an ethos of an inter-professional learning.</p> <p>The programme has been designed so that in each year the students' specialism specific taught material is front loaded into the intensive teaching weeks). This will enable the student to absorb the knowledge required to prepare them for their clinical rotations and then latterly for their specialism specific role and enable them to work effectively through their work-based clinical rotations. This method of "knowledge loading" also supports the problem based learning approach and prepares them for their clinical rotations.</p> <p>The students will have the benefit of accessing the expertise, learning and clinical facilities of Newcastle University as well as of clinical facilities at Newcastle upon Tyne Hospitals NHS Foundation Trust and other facilities in the North East region, and from experts in their field throughout the North East region.</p> <p>The link between the theoretical underpinning provided by the academic input and the direct application of theory to practice in the workplace makes these programmes distinctive.</p>			
Programme regulations (link to on-line version)			
https://teaching.ncl.ac.uk/docs/regsdocs2021/documents/-R5253P_5257P_vFinal.pdf			

13	Support for Student Learning
	https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf
14	Methods for evaluating and improving the quality and standards of teaching and learning
	https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf
15	Regulation of assessment
	https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf
In addition, information relating to the programme is provided in:	
The University Prospectus: http://www.ncl.ac.uk/postgraduate/courses/	
Degree Programme and University Regulations: http://www.ncl.ac.uk/regulations/docs/	
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.	