

**A. Programme Specification and Curriculum Map  
for MSc Clinical Physiology(Specialism)**

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<b>1. Programme title</b>	MSc Clinical Physiology(Specialism)
<b>2. Awarding institution</b>	Middlesex University
<b>3. Teaching institution</b>	Middlesex University
<b>4. Programme accredited by</b>	
<b>5. Final qualification</b>	MSc/PgDip/PgCert Clinical Physiology (Cardiology) MSc/PgDip/PgCert Clinical Physiology (Neurophysiology)
<b>6. Academic year</b>	2014/2015
<b>7. Language of study</b>	English
<b>8. Mode of study</b>	Full-time and Part-time

**9. Criteria for admission to the programme**

Candidates must meet at least one of the first two criteria below:

i. A good honours degree (minimum 2.ii) or equivalent qualification, in a health or science-based subject; applicant must normally be a clinical physiologist. Applications from other healthcare professionals (e.g. registered nurse, clinical exercise physiologist, physiotherapist and medical practitioners) are also welcomed.

ii Applicants with other qualifications and / or substantial work experience in Clinical Physiology will also be considered under the Accreditation of Prior Experiential Learning (APEL) scheme. Past learning or experience will be mapped against existing programme modules within the programme and the mapping will be considered at the accreditation board.

iii Overseas Candidates should also be competent in English and have achieved, as a minimum, one of the following standards: IELTS-6.5; TOEFL – 60.

Applicants with a disability can enter the programme following assessment to determine if they can work safely in the laboratory. The programme team have experience of adapting teaching provision to accommodate a range of disabilities and welcome applications from students with disabilities.

**10. Aims of the programme**

The programmes aim to prepare students for careers in academia, working in a clinical physiology department or medical equipment sales.

The PgCert Clinical Physiology (Specialism) aims to:

- Equip students with a mastery of the fundamental principles and recent advances in cardiology or clinical neurophysiology
- Give students a thorough grounding in the fundamental mechanisms underpinning the major pathological processes

- Provide students with sufficiently detailed information about the modern technologies used in diagnostics and research to enable them to solve complex problem related to disease investigation
- Allow students to develop mastery of communication, teamwork, writing and presentation.

The PgDip/MSc Clinical Physiology (Specialism) aims to:

- Equip students with a mastery of the fundamental principles and recent advances in Clinical Physiology within a specific specialism.
- Give students a thorough grounding in the fundamental mechanisms underpinning the major pathological processes.
- Provide students with sufficiently detailed information about the modern technologies used in diagnostics and research to enable them to solve complex problem related to disease investigation
- Enable students to understand and apply the principles of leadership and management, health and safety, quality control, research and statistical methods in their professional lives.
- Enable students to critically evaluate legal requirements for human experiments and ethical issues relating to research with human subjects and human tissue.
- Provide students with the tools to acquire the essential facts, concepts, principles and theories relevant to their chosen research project.
- Give students the ability to critically evaluate current research literature in Clinical Physiology, and an acquisition of the skills for lifelong learning
- Allow students to develop mastery of communication, teamwork, writing and presentation.

**In addition, on completion of the MSc the successful student will:**

- Have acquired the design, critical analysis and practical skills necessary to carry out an individualised experimental research project
- Have developed the skills to evaluate literature in the context of their current research and propose new hypotheses relevant to their research.

## 11. Programme outcomes

### A. Knowledge and understanding

On completion of this programme the successful student will have acquired mastery of:

1. The aetiology and pathology of common diseases related to cardiology or neurophysiology
2. Ethical and legal issues in Clinical Physiology
3. Equipment, advanced diagnostic techniques and therapeutic interventions used in cardiology or clinical neurophysiology

### Teaching/learning methods

Students gain knowledge and understanding through lectures, seminars and laboratory work, self study (both directed and self-directed) and online learning.

### Assessment Method

Students' knowledge and understanding is assessed by both summative and formative assessments, which include seminar presentations, written assignments

<p>4. Research methods 5. Clinical leadership and management</p>	<p>including laboratory reports, seen practical and theory examinations.</p>
<p><b>B. Cognitive (thinking) skills</b></p> <p>On completion of the PgDip or MSc programme the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Develop ideas through the evaluation of appropriate literature, concepts and principles</li> <li>2. Design a research project</li> <li>3. Present, analyse and critically evaluate physiological data</li> <li>4. Debate ethical and legal issues in Clinical Physiology</li> <li>5. Develop a research project</li> <li>6. Critically assess health risk factors associated with working in a research or clinical setting</li> </ol> <p><b>In addition on completion of the MSc the successful student will be able to</b></p> <ol style="list-style-type: none"> <li>7. Propose new hypotheses relevant to discipline</li> <li>8. Critically evaluate their research findings in the context of the literature research</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students learn cognitive skills through analysis of research literature and undertaking a research project that they have designed themselves, including consideration of the inherent ethical and health and safety implications.</p> <p><b>Assessment Method</b></p> <p>Students' cognitive skills are assessed by written work, examinations, presentations and a research project.</p>
<p><b>C. Practical skills</b></p> <p>On completion of the programme the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Competently perform advanced diagnostic or therapeutic procedures in accordance with health and safety guidelines</li> <li>2. Recognise and respond to moral, ethical and safety issues, which directly pertain to Clinical Physiology</li> <li>3. Correctly perform calibration, safety testing, quality control and assurance procedures relating to physiological science services</li> </ol> <p><b>In addition on completion of the MSc the successful student will be able to</b></p> <ol style="list-style-type: none"> <li>4. Carry out experimental research</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students learn practical skills through laboratory practical classes, and undertaking a research project.</p> <p><b>Assessment Method</b></p> <p>Students' practical skills are assessed by laboratory reports and dissertation.</p>

<p><b>D. Professional Skills</b></p> <p>On completion of this programme the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Demonstrate effective communication and presentation skills</li> <li>2. Demonstrate leadership and managerial skills</li> <li>3. Demonstrate competence in the use of information technology</li> <li>4. Demonstrate numeracy and problem solving skills at a high level</li> <li>5. Manage a research project and demonstrate a high level of research skills</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students acquire graduate skills through lectures, seminars, practical laboratory work, literature searches, peer presentations, videos and online presentations, research project</p> <p><b>Assessment method</b></p> <p>Students' graduate skills are assessed by presentations, self-assessment and project work.</p>
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<p><b>12. Programme structure (levels, modules, credits and progression requirements)</b></p>
<p><b>12. 1 Overall structure of the programme</b></p>
<p>All programmes can be studied over either one-year full time or two years part time.</p> <p>For a PgCert in Clinical Physiology, full-time students will complete the four 15-credits core modules whereas for a PgCert in one of the specialisms, students will take the four 15-credits specialist modules in one year. For both awards, part-time students will normally take two modules in each of the two years.</p> <p>Full-time PgDip and MSc students will take the four core modules and the four specialist modules over an academic year. In addition, the MSc students will take a 60-credits project module during the Summer term. Students cannot start their projects until they have passed all taught modules.</p> <p>Part-time PgDip and MSc students will take three modules in each of the two years. Only the MSc students will undertake a research project after passing all taught modules.</p> <p>The total number of credits required for an award is: 60 credits for a PgCert; 120 for the PgDip; and 180 for the MSc.</p>

12.2 Levels and modules		
Level 7		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
All students must complete the 4 modules that form one of the specialisms in order to gain the PgCert Clinical Physiology (Specialism):	Cardiology BMS4667 BMS4957 BMS4057 BMS4087 BMS4067 BMS4007  Neurophysiology BMS4667 BMS4957 BMS4037 BMS4047 BMS4017 BMS4027	
All students must complete the following for the PgDip and in addition to this must complete the four modules that form one of the specialisms:  BMS4667  BMS4777  BMS4887  BMS4957	Cardiology BMS4057 BMS4087 BMS4067 BMS4007  Neurophysiology BMS4037 BMS4047 BMS4017 BMS4027	Successful completion of all modules

All students must complete the following for the MSc and in addition to this must complete the four modules that form one of the specialisms:  BMS4667  BMS4777  BMS4887  BMS4957  BMS4997	Cardiology	Successful completion of all modules
	BMS4057	
	BMS4087	
	BMS4067	
	BMS4007	
	Neurophysiology	
	BMS4037	
	BMS4047	
	BMS4017	
	BMS4027	

### **12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels)**

<b>Module level</b>	<b>Module code</b>
7	All modules

### **13. A curriculum map relating learning outcomes to modules**

See Curriculum Map attached.

### **14. Information about assessment regulations**

The assessment regulations are the general university regulations.

### **15. Placement opportunities, requirements and support**

Not-applicable

### **16. Future careers**

A qualification at master's level is increasingly becoming a requirement for progression via a PhD into a research career. A master's degree is also an important means for health care professionals to develop the skills necessary to progress from practitioner to highly specialist practitioner.

### **17. Particular support for learning (if applicable)**

We have specialist laboratory facilities for the development of practical skills.

Middlesex University Library will provide access to specialist journals. For ease of access for students based at Hendon, the library has facilities for inter-library

photocopying of any articles required. Other articles may be obtained from the British Library in London where a similar arrangement for photocopying articles exists.

A student may undertake a research project at their workplace where relevant and possible.

Applicants with a disability can enter the programme following an assessment of their needs, and to determine if they can work safely in the laboratory. The programme team have experience of adapting the programme to accommodate a range of disabilities in students on the Clinical Physiology programmes and welcome applications from such students.

Learning resource services and facilities at Middlesex include a CAL suite and internet access as well as English learning and Language Support

Learning resources and other support for modules is delivered via myUniHub.

<b>18. JACS code (or other relevant coding system)</b>	Cardiology B810 Neurophysiology B990
<b>19. Relevant QAA subject benchmark group(s)</b>	

## 20. Reference points

The following reference points were used in designing the Programme:

### Internal documentation:

- i. Middlesex University (2006) *Learning Framework Document*
- ii. Middlesex University (2013) *Middlesex University Regulations*. MU
- iii. Middlesex University (2013) *CLQE Handbook*. MU

### External Documentation:

1. Quality Assurance Agency (2001) *The QAA Framework for framework for higher education qualifications in England, Wales and Northern Ireland*. QAA
2. Department of Health (DH) (2013) *Modernising Scientific Careers. Scientist Training Programme MSc in Clinical Science Curriculum. Cardiac, Critical Care, Vascular, Respiratory and Sleep Sciences 2013/14*. DH
3. Department of Health (DH) (2013) *Modernising Scientific Careers Scientist Training Programme. MSc in Clinical Science Curriculum. Neurosensory Sciences 2013/14*. DH

Please note programme specifications provide a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if s/he takes full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the student programme handbook and the University Regulations.

## Curriculum map for MSc Clinical Physiology

This section shows the highest level at which programme outcomes are to be achieved by all graduates, and maps programme learning outcomes against the modules in which they are assessed.

### Programme learning outcomes

Knowledge and understanding		Practical skills	
A1	The aetiology and pathology of common diseases related to cardiology or neurophysiology	C1	Competently perform advanced diagnostic or therapeutic procedures in accordance with health and safety guidelines
A2	Ethical and legal issues in Clinical Physiology	C2	Recognise and respond to moral, ethical and safety issues, which directly pertain to the Clinical Physiology
A3	Equipment, advanced diagnostic techniques and therapeutic interventions used in cardiology or clinical neurophysiology	C3	Correctly perform calibration, safety testing, quality control and assurance procedures relating to physiological science services
A4	Research methods	C4	Carry out research experiments
A5	Clinical leadership and management		
Cognitive skills		Professional skills	
B1	Develop ideas through the evaluation of appropriate literature, concepts and principles	D1	Demonstrate effective communication and presentation skills
B2	Design a research project	D2	Demonstrate leadership and managerial skills
B3	Present, analyse and critically evaluate physiological data	D3	Demonstrate competence in the use of information technology
B4	Debate ethical and legal issues in Clinical Physiology	D4	Demonstrate a high level of numeracy and problem solving skills
B5	Develop a research project	D5	Manage a research project and demonstrate a high level of research skills
B6	Critically assess health risk factors associated with working in a research or clinical setting		
B7	Propose new hypotheses relevant to discipline		
B8	Critically evaluate research findings in the context of the literature research		



## MSc Clinical Physiology (Cardiology)

Programme outcomes																									
A1	A2	A3	A4	A5		B1	B2	B3	B4	B5	B6	B7	B8		C1	C2	C3	C4		D1	D2	D3	D4	D5	
Highest level achieved by all graduates																									
7	7	7	7	7		7	7	7	7	7	7	7	7		7	7	7	7		7	7	7	7	7	

Module Title	Module Code by Level	Programme outcomes																										
		A1	A2	A3	A4	A5		B1	B2	B3	B4	B5	B6	B7	B8		C1	C2	C3	C4		D1	D2	D3	D4	D5		
Laboratory Leadership and Management	BMS4667					x		x			x		x					x										
Biomedical Ethics and Law	BMS4777		x					x			x							x										
Experimental Design and Statistics	BMS4887				x				x	x		x						x	x				x		x	x	x	
Research Project	BMS4997		x		x				x	x		x	x	x	x			x		x			x			x	x	
Advanced Signal Processing	BMS4957			x				x		x			x						x				x		x	x		
Cardiac Ultrasound Theory	BMS4057	x		x				x		x			x					x		x			x		x	x		
Cardiac Ultrasound Practice	BMS4087	x		x				x		x			x					x		x			x		x	x		
Clinical Electrophysiology	BMS4067	x		x				x		x			x					x		x			x		x	x		
Cardiac Rhythm Management	BMS4007	x		x				x		x			x					x		x			x		x	x		

## MSc Clinical Physiology (Neurophysiology)

Programme outcomes																									
A1	A2	A3	A4	A5		B1	B2	B3	B4	B5	B6	B7	B8		C1	C2	C3	C4		D1	D2	D3	D4	D5	
Highest level achieved by all graduates																									
7	7	7	7	7		7	7	7	7	7	7	7	7		7	7	7	7		7	7	7	7	7	

Module Title	Module Code by Level	Programme outcomes																									
		A1	A2	A3	A4	A5		B1	B2	B3	B4	B5	B6	B7	B8		C1	C2	C3	C4		D1	D2	D3	D4	D5	
Laboratory Leadership and Management	BMS4667					X		X			X		X					X					X				
Biomedical Ethics and Law	BMS4777		X					X			X							X									
Experimental Design and Statistics	BMS4887				X				X	X		X						X	X			X		X	X	X	
Research Project	BMS4997		X		X				X	X		X	X	X	X			X		X		X			X	X	
Advanced Signal Processing	BMS4957			X				X		X			X						X			X		X	X	X	
Paediatric Neurophysiology	BMS4037	X		X				X		X			X				X		X			X		X	X		
Peripheral Neurophysiology	BMS4047	X		X				X		X			X				X		X			X		X	X		
Neurophysiology in Intensive Care	BMS4017	X		X				X		X			X				X		X			X		X	X		
Intra-Operative Monitoring In Neurophysiology	BMS4027	X		X				X		X			X				X		X			X		X	X		

## Programme Assessment Schedule

Module Number	1	2	3	4	5	6	7	8	9	10	11	12
<b>Core</b>												
BMS4667												
BMS4777												
BMS4887					FI				SI2			SI1
BMS4957												
BMS4977								F1				SI1
<b>Cardiology</b>												
BMS4057			FI							SI		
BMS4067								FE				
BMS4007												
BMS4087												
<b>Neurophysiology</b>												
BMS4037						FI						SI
BMS4047										FI		
BMS4017												
BMS4027												

### Key

FI= Formative Individual Coursework  
Clinical Examination UE= unseen exam

FE = Formative Examination SI = Summative Individual Coursework  
Week 24 or final coursework deadline

CE= Summative

