MSc Clinical Neuroscience

Programme Specification

1. Programme title	MSc/PGDip Clinical Neuroscience
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Details of accreditation by professional/statutory/regulatory body	N/A
5. Final qualification(s) available	MSc Clinical Neuroscience PGDip Clinical Neuroscience PGCert Clinical Neuroscience PGCert Neuroscience
6. Year of validation / last review **Year of amendment**	2020/21
7. Language of study	English
8. Mode of study	Full-time / Part-time

9. Criteria for admission to the programme

- Applicants must have a minimum of a 2:2 undergraduate degree in biology, biomedical science, neuroscience or psychology with neuroscience. Students whom English is a second language must have achieved IELTS 6.5 or above, with at least a grade 6.0 in written English.
- Applicants with other qualifications and / or substantial relevant work experience with clear evidence of actual learning can make a claim for recognition of previous learning (RPL). A claim is considered by the faculty RPL committee and the successful candidate may receive exemption from as much as two thirds of the total credits required for the qualification.
- 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 PGDip or MSc aims to:

1. Give students an understanding of the fundamental principles and recent advances in clinical neurophysiology.
2. Enable students to acquire an understanding of electrophysiology, neuroimaging and clinical methods to advance our understanding of the pathological processes and interpretation of diagnostic data
3. Provide students with the ability to:
    a. select the most appropriate clinical investigation techniques,
    b. collect, store and analyse neurological data
    c. interpret and present neurological and clinical data in an appropriate manner.
4. Give students an understanding of statistical programming languages.
5. Provide students with the ability to critically evaluate current research in clinical neurology and clinical neurophysiology
6. Enable students to propose solutions to fundamental questions in clinical neurology and neurophysiology and to acquire the skills for lifelong learning
7. Produce ethical scientists.

In addition, the MSc aims to:

1. Provide students with the knowledge and skills to design and carry out an individualised research project to address a fundamental question in clinical neurology.
2. Develop the critical 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 knowledge and understanding of : 1. Neuroanatomy and circuitry in relation to normal function. 2. The aetiology and pathology of common diseases related to clinical neurology and neurophysiology. 3. Statistical theory and methods. 4. Neurophysiological and neuroimaging techniques used in research and healthcare. 5. Acquisition and storage techniques, analysis and visualisation of neurological data. 6. Signal analysis and modelling methodology used in clinical neuroscience. 7. The ethical and legal issues related to the collecting, handling and storing of data.	**Teaching/learning methods** Students gain knowledge and understanding through: 1. Attending lectures 2. Participatory seminars 3. Small group discussions 4. Directed learning 5. Group and individual exercises 6. Laboratory sessions **Assessment methods** Students' knowledge and understanding is assessed by: 1. seminar presentations 2. laboratory investigations 3. written assignments 4. unseen examinations 5. project work.
B. Skills On completion of this programme the successful student will be able to: 1. Propose solutions to fundamental questions in clinical neurology & neurophysiology. 2. Analyse a dataset of normal and pathological (clinical) recordings. 3. Evaluate and present data using the most appropriate visualisation techniques. 4. Analyse complex problems systematically and implement effective solutions. 5. Carry out an original research project, present and critically evaluate the research findings.	**Teaching/learning methods** Students learn skills through: 1. Lectures 2. Group discussions 3. Formative assessment 4. Peer- review of seminar presentations 5. Directed reading 6. Individual project **Assessment methods** Students skills are assessed by: 1. written assignments 2. peer and self-assessment 3. examinations 4. case studies 5. project work.

12. Programme structure (levels, modules, credits and progression requirements)

12. 1 Overall structure of the programme

PgCert / PgDip / MSc Clinical Neuroscience (Full-time) Oct Start

Term 1 (Autumn term- Oct)	Term 2 (Winter term- Jan)	Term 3 (Summer- June)
BMS4887 Experimental Design and Statistics 15 credits	BMS4777 Biomedical Ethics and Law 15 credits	BMS4997 Research Project 60 credits
BMS4157 Neurobiology 15 credits	BMS4167 Neuropathology 15 credits	
BMS4037 Paediatric Neurophysiology 15 credits	BMS4047 Peripheral Neurophysiology 15 credits	
BMS4187 Specialised Techniques in Clinical Neurophysiology 15 credits	BMS4177 Analysis and Parameter Extraction of Neural Data 15 credits	

PgCert / PgDip / MSc Clinical Neuroscience (Part-time) Oct Start

Year 1

Term 1 (Autumn term- Oct)	Term 2 (Winter term- Jan)	Term 3 (Summer- June)
BMS4157 Neurobiology 15 credits	BMS4167 Neuropathology 15 credits	
BMS4037 Paediatric Neurophysiology 15 credits	BMS4047 Peripheral Neurophysiology 15 credits	

Year 2

BMS4887 Experimental Design and Statistics 15 credits	BMS4777 Biomedical Ethics and Law 15 credits	
BMS4187 Specialised Techniques in Clinical Neurophysiology 15 credits	BMS4177 Analysis and Parameter Extraction of Neural Data 15 credits	BMS4997 Research Project 60 credits

The total number of credits required for each award is as follows:

PGCert *Clinical Neuroscience / Neuroscience– 60 credits

PGDip Clinical Neuroscience – 120 credits

MSc Clinical Neuroscience – 180 credits

*For a PGCert in *clinical* neuroscience, a student must pass BMS4037, BMS4047, BMS4167 and BMS4187 and achieve between 60 and 105 credit points. Any other combination of modules, the student will be eligible for a PGCert in neuroscience. Both PGCerts are only exit awards - students cannot apply to study for either of them.

12.2 Levels and modules

Level 7

COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
Students must take all the following: BMS4037 Paediatric Neurophysiology BMS4047 Peripheral Neurophysiology BMS4157 Neurobiology BMS4167 Neuropathology BMS4177 Analysis and Parameter Extraction of Neural Data BMS4187 Specialised Techniques in Clinical Neurophysiology BMS4777 Biomedical Ethics and Law BMS4887 Experimental Design and Statistics BMS4997 Research Project	There are no optional modules	Students must pass all taught models before they can progress onto the project stage.

12.3 Compensatable modules

Module level	Module code
7	None

13. Information about assessment regulations

Assessment regulations are followed as approved by Middlesex University:

https://unihub.mdx.ac.uk/study/assessment/regulations

To pass the module, students must achieve an aggregate grade of at least 16 with no lower than a grade 18 for any component.

14. Placement opportunities, requirements and support

N/A

15. Future careers / progression

For both PGDip and MSc pathways, the programme is designed to help students to pursue careers as scientists in the field of neuroscience or ‘clinical scientist’ within the healthcare professions. The latter is a practiced-based clinical training programme that is undertaken within NHS departments.

In addition, successful MSc students will be equipped to progress to PhD programmes in neuroscience or clinical neurophysiology.

Other possible career areas for either pathway include working as a neuroscience researcher in academia, private sector biotechnology, or the pharmaceutical sector.

16. Particular support for learning (if applicable)

All new students go through an induction programme and some have early diagnostic numeric and literacy testing before starting their programme. The Learner Enhancement Team (LET) provide one-to- one tutorials and workshops for those students needing additional support in these areas.

High quality specialist laboratories equipped with industry standard software and hardware where appropriate, for formal teaching as well as self-study.

Research activities of academic staff feed into the teaching programme, which can, on some occasions, provide an opportunity for students to work with academics on some aspect of research.

17. JACS code (or other relevant coding system)	B180
18. Relevant QAA subject benchmark group(s)	Neuroscience

19. Reference points

Internal documentation

Middlesex University (2006) *Learning Framework Document*. London, MU
Middlesex University (2019) *Middlesex University Regulations.* London, MU
Middlesex University (2019) *Learning and Quality Enhancement Handbook.* London, MU
Middlesex University (2019) *Medical Science and Technology Learning, Teaching and Assessment Strategy*. S&T

External documentation

Quality Assurance Agency (2008) *Framework for Higher Qualification.* London, QAA

Quality Assurance Agency (2015) Characteristics Statement. Master's Degree. London, QAA

20. Other information

N/A

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 rest of your programme handbook and the university regulations.

Curriculum map for *MSc Clinical Neuroscience*

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	
A1	Neuroanatomy and circuitry in relation to normal function.
A2	The aetiology and pathology of common diseases related to clinical neurology and neurophysiology.
A3	Statistical theory and methods.
A4	Neurophysiological and neuroimaging techniques used in research and healthcare.
A5	Acquisition and storage techniques, analysis and visualisation of neural data.
A6	Signal analysis, imaging and modelling methodology used in clinical neuroscience.
A7	The ethical and legal issues related to the collecting, handling and storing of data.
Skills	
B1	Propose solutions to fundamental questions in clinical neuroscience.
B2	Analyse a dataset of pathological or neural recordings.
B3	Present data using the most appropriate visualisation techniques.
B4	Analyse complex problems systematically and implement effective solutions.

B5	Carry out an original research project, present and critically evaluate the research findings.

Programme outcomes											
A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5
Highest level achieved by all graduates											
7	7	7	7	7	7	7	7	7	7	7	7

Module Title	Module Code by Level	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5
Neurobiology	BMS4157	x	x										
Neuropathology	BMS4167	x	x										
Peripheral Neurophysiology	BMS4047				x	x				x			
Paediatric Neurophysiology	BMS4037				x	x		x		x			
Analysis and Parameter Extraction of Neural Data	BMS4177				x	x	x	x		x	x	x	
Experimental Design and Statistics	BMS4887			x		x					x		
Research Project	BMS4997			x					X		x	x	x
Specialised Techniques in Clinical Neurophysiology	BMS4187			x	x	x							
Biomedical Ethics and Law	BMS4777							x	X				x