

Programme Specification

MSc Biomedical Science (Clinical Biochemistry)



1. Programme title	MSc Biomedical Science (Clinical Biochemistry)
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Details of accreditation by professional/statutory/regulatory body	The Institute of Biomedical Science
5. Final qualification	MSc/PgDip Biomedical Science (Clinical Biochemistry)
6. Year of validation Year of amendment	
7. Language of study	English
8. Mode of study	Full time/Part time

9. Criteria for admission to the programme

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

- i. They must have either a minimum of 2ii or equivalent qualification in an appropriate subject.
- ii Applicants with other qualifications and / or substantial work experience in biomedical science 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 – 84.

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 programme aims to: prepare students for independent research careers in academia, diagnostic laboratories or the biotechnology sector. The PgDip or MSc programme aims to

- Equip students with a mastery of the fundamental principles and recent advances in biomedical science.
- Give students a thorough grounding in the fundamental mechanisms underpinning the major pathological processes.
- Provide students with sufficient detailed information about the modern technologies used in diagnostics and research to enable them to apply these to complex problem solving in the investigation of disease.
- Enable students to understand and use the principles of laboratory management, safety, quality control, research and statistical methods in their professional lives.
- Enable students to critically evaluate legal requirements for human and animal 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 biomedical science, and an acquisition of the skills for lifelong learning
- Allow students to develop mastery of management, leadership and communication skills, teamwork, writing and presentation skills.

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 context to their current research and propose new hypotheses relevant to their research.

11. Programme outcomes	
<p>A. Knowledge and understanding</p> <p>On completion of this programme the successful student will have knowledge and understanding of:</p> <ol style="list-style-type: none"> 1.The aetiology, pathology and treatment of common diseases 2. Ethics and legal issues in biomedical science 3. Diagnostic techniques 4. Research methods 5. Leadership and laboratory management 	<p>Teaching/learning methods</p> <p>.Students gain knowledge and understanding through lectures, seminars and laboratory work, self study (both directed and self-directed) and online learning.</p> <p>Assessment Method</p> <p><i>Students' knowledge and understanding is assessed by both summative and formative assessments, which include seminar presentations, written assignments including laboratory reports, seen practical and theory examinations.</i></p>
<p>B. Cognitive (thinking) skills</p> <p>On completion of this programme the</p>	<p>Teaching/learning methods</p>

<p>successful student will be able to:</p> <p>Develop ideas through the evaluation of appropriate literature, concepts and principles</p> <p>Design a research project</p> <p>Analyse, present, judge, interpret and critically evaluate biomedical data</p> <p>Debate ethical and legal issues in biomedical science</p> <p>Develop a research project</p> <p>Critically assess health risk factors associated with working in a research or diagnostic laboratory</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>Assessment methods</p> <p><i>Students' cognitive skills are assessed by written work, examinations, presentations and a research project</i></p>
<p>C. Practical skills</p> <p>On completion of the programme the successful student will be able to:</p> <ol style="list-style-type: none"> 1. Competently perform advanced biomedical laboratory techniques in accordance with health and safety guidelines 2. Recognise and respond to moral, ethical and safety issues, which directly pertain to the biomedical science 3. Correctly perform quality control and assurance procedures <p>In addition on completion of the MSc the successful student will be able to</p> <ol style="list-style-type: none"> 4. <i>Carry out research experiments</i> 	<p>Teaching/learning methods</p> <p>Students learn practical skills through laboratory practical classes, and undertaking a research project.</p> <p>Assessment Method</p> <p>Students' practical skills are assessed by laboratory reports and dissertation</p>
<p>D. Graduate skills</p>	<p>Teaching/learning methods</p>

<p>On completion of this programme the successful student will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate effective communication and presentation skills 2. Demonstrate leadership and managerial skills 3. Competence in the use of information technology 4. Demonstrate high level of numeracy and problem solving skills 5. Manage a research project and use a range of research skills 	<p>Students acquire graduate skills through lectures, seminars, practical laboratory work, literature searches, peer presentations, videos and online presentations, research project</p> <p>Assessment method</p> <p>Students' graduate skills are assessed by presentations, self-assessment and project work.</p> <p>Assessment methods</p> <p>.</p>
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12. Programme structure (levels, modules, credits and progression requirements)
12. 1 Overall structure of the programme

12.2 Levels and modules		
Level 7		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS

<p>Students must take all of the following:</p> <p>Students must take all of the following for MSc:</p> <p>BMS4667 BMS4777 BMS4887 BMS4977 BMS4117 BMS4127 BMS4137 BMS4147</p>		<p>Successful completion of all modules</p>
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12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels)	
Module level	Module code
	All modules

13. Curriculum map
See attached.

14. Information about assessment regulations
The assessment regulations are the general university regulations.

15. Placement opportunities, requirements and support (if applicable)
<i>Non applicable</i>

16. Future careers (if applicable)

Masters degree is increasingly becoming a requirement for progression via a PhD into a research career. Masters degree is also an important means for health care professionals to develop the skills necessary to progress from specialist practitioner (currently BMS2) to higher specialist practitioner (currently (BMS3).

17. Particular support for learning (if applicable)

We have specialist laboratory facilities for the development of practical skills. Our new laboratories for research and postgraduate teaching are based at Hendon. These include Molecular biology lab for techniques such as DNA sequencing, real-time PCR, electrophoresis, HPLC, MS, as well as fully equipped Proteomics and cell culture facilities.

Access to specialist journals in the area of Clinical Biochemistry will be provided by Middlesex University Library and at the hospital campuses. 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; supervisors there should hold the FIBMS qualification or equivalent, and can access the Laboratory Mentorship programme at Middlesex University to help them support the student.

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 biomedical science programmes and welcome applications from such students.

LRS facilities at Middlesex including CAL suite and internet access.

Support for modules available on My Learning.

18. JACS code (or other relevant coding system)

B900

19. Relevant QAA subject benchmark group(s)

Biomedical Science

20. Reference points

The following reference points were used in designing the programme:

Internal Documentation:

- i. Middlesex University (2006) *Learning Framework Document*. London, MU
- ii. Middlesex University (2011) *Middlesex University Regulations*. London, MU
- iii. Middlesex University (2011) *CLQE Handbook*. London, MU
- iv. School of Health and Social Sciences (2008) *Assessment Policy and Strategy*. HSSC
- v. Biomedical Science Programmes (2007) *Learning, Teaching and Assessment Strategy*

External Documentation:

1. IBMS (2009) *Criteria and Requirements for the Accreditation and Re-accreditation of MSc degrees in Biomedical Science*. London, IBMS
 2. Quality Assurance Agency (2008) *Framework for Higher Qualifications*, London, QAA
 3. Quality Assurance Agency (2007) *QAA Subject Benchmarking Group: Biomedical Science*. London, QAA
- Department of Health (2009) The Future of the Healthcare Science Workforce Modernising Scientific Careers: The Next Steps A Consultation. London, DoH*

21. Other information

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.

Appendix 2. Curriculum map for MSc/PGDip/PGCert Biomeical Science (Clinical Biochemistry)

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	Aetiology and pathology of common diseases	C1	Competently perform advanced biomedical laboratory techniques in accordance with health and safety guidelines
A2	Ethics and legal issues in biomedical science	C2	Recognise and respond to moral, ethical and safety issues, which directly pertain to the biomedical science
A3	Diagnostic techniques	C3	Correctly perform quality control and assurance procedures
A4	Research methods	C4	Carry out research experiments
A5	Leadership and laboratory management		
Cognitive skills		Professional Skills	

