

Programme Specification

MSc Biomedical Science (Medical Microbiology)



1. Programme title	MSc Biomedical Science (Medical Microbiology)
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Details of accreditation by professional/statutory/regulatory body	The Institute of Biomedical Science (IBMS)
5. Final qualification	MSc/PGDip/PGCert Biomedical Science (Medical Microbiology) PGCert Biomedical Science
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. A good honours degree (minimum 2.ii) or equivalent qualification, in an appropriate subject (i.e. majoring in Microbiology).

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.

Overseas Candidates should also be competent in English and have achieved, as a minimum, one of the following standards: IELTS- 6.5; TOEFL – 87.

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 independent research careers in academia, diagnostic laboratories or the biotechnology sector

The PGCert Biomedical Science aims to:

1. Equip students with a mastery of the fundamental principles and recent advances in biomedical science.
2. Provide students with sufficiently 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

3. Enable students to understand and use the principles of laboratory management, safety, quality control, research and statistical methods in their professional lives.

4. Enable students to critically evaluate legal requirements for human and animal experiments and ethical issues relating to research with human subjects and human tissue.

5. Give students the ability to critically evaluate current research literature in biomedical science, and an acquisition of the skills for lifelong learning

6. Allow students to develop mastery of management, leadership a communication skills, teamwork, writing and presentation skills

The PgCert Biomedical Science (Medical Microbiology) aims to:

7. Equip students with a mastery of the fundamental principles and recent advances in biomedical science within the specific specialism of Medical Microbiology.

8. 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, within a specific specialism, to enable them to apply

these to complex problem solving in the investigation of disease

The PgDip/MSc Biomedical Science (Medical Microbiology) aims to:

- Equip students with a mastery of the fundamental principles and recent advances in biomedical science within the specific specialism of Medical Microbiology.
- 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 the context of 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> <ul style="list-style-type: none"> • The aetiology and pathology of common diseases • Ethical and legal issues in biomedical science • Diagnostic techniques • Research methods <p>Leadership skills and laboratory management</p>	<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 successful student will be able to:</p> <ul style="list-style-type: none"> • Develop ideas through the evaluation of appropriate literature, concepts and principles <ol style="list-style-type: none"> 2. Design a research project 3. Analyse, present, judge, interpret and critically evaluate biomedical data 4. Debate ethical and legal 	<p>Teaching/learning methods</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</i></p>

<p>issues in biomedical science</p> <ol style="list-style-type: none"> 5. Develop a research project 6. Critically assess health risk factors associated with working in a research or diagnostic laboratory <p>In addition on completion of the MSc the successful student will be able to</p> <ol style="list-style-type: none"> 7. Propose new hypotheses relevant to discipline <p>Critically evaluate their research findings in the context of the literature research</p>	<p><i>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 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. Carry out research experiments 	<p>Teaching/learning methods</p> <p>Students learn practical skills through laboratory practical classes, and undertaking a research project.</p> <p>Assessment methods</p> <p>Students' practical skills are assessed by laboratory reports and dissertation.</p>
<p>D. Graduate skills</p> <p>On completion of this programme the successful student will be able to:</p>	<p>Teaching/learning methods</p> <p>.Students acquire graduate skills through</p>

<p>1. Demonstrate effective communication and presentation skills</p> <p>2. Demonstrate leadership and managerial skills</p> <p>3. Demonstrate competence in the use of information technology</p> <p>4. Demonstrate numeracy and problem solving skills at a high level</p> <p>Manage a research project and use a range of research skills</p>	<p>lectures, seminars, practical laboratory work, literature searches, peer presentations, videos and online presentations, research project</p> <p>Assessment method</p> <p><i>Students' graduate skills are assessed by presentations, self- assessment and project work.</i></p>
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12. Programme structure (levels, modules, credits and progression requirements)

12.1 Overall structure of the programme

The programmes can be studied over either one-year full time or two years part time. For a PGCert in Biomedical Science, full-time students will complete the four 15-credits core modules whereas for a PgCert in one of Medical Microbiology, students will take the four 15-credits specialist Medical Microbiology modules in one year. For both awards, part-time students will normally take two modules in each of the two years. 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. Part-time PGDip and MSc students will take four taught modules in each of the two years. Only the MSc students will undertake a research project in their second year, after passing all taught modules. The total number of credits required for an award is: 60 credits for a PGCert; 120 for the PGDip; and 180 for the MSc.

12.2 Levels and modules

Level 7

COMPULSORY

OPTIONAL

PROGRESSION
REQUIREMENTS

<p>Students must take all of the following:</p> <p><i>All students must take the following for the PG Cert Biomedical Science: BMS4667 BMS4777 BMS4887 BMS4977</i></p>	<p>NONE</p>	
<p>All students must complete the 4 modules that form the Medical Microbiology specialism (BMS4417, BMS4427, BMS4437, BMS4447) in order to gain the PG Cert Biomedical Science (Medical Microbiology):</p>		
<p>All students must complete the following for the PG Dip Biomedical Science (Medical Microbiology):</p> <p>BMS4667 BMS4777 BMS4887 BMS4977 BMS4417 BMS4427 BMS4437 BMS4447</p>		
<p>All students must complete the following for the MSc Biomedical Science (Medical Microbiology):</p> <p>BMS4667 BMS4777 BMS4887 BMS4977 BMS4417 BMS4427 BMS4437 BMS4447 BMS4997</p>		

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

Module level	Module code
7	ALL MODULES

13. Curriculum map

See attached.

14. Information about assessment regulations**15. Placement opportunities, requirements and support (if applicable)**

Not applicable

16. Future careers (if applicable)

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 specialist practitioner (BMS Band 6) to higher specialist practitioner (currently (BMS Band 7). Possession of the MSc degree is also likely to enhance your marketability in academic research, *industrial research and development, communications and public health.*

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 a molecular biology lab for techniques such as real-time PCR, electrophoresis, HPLC, MS, as well as a fully equipped proteomics facility. Access to specialist journals will be provided by Middlesex University Library. 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.

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.

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

Appendix 2: Curriculum Map

Curriculum map for MSc Biomedical Science (Medical Microbiology)

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	Ethical 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	
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	Analyse, present, interpret and critically evaluate biomedical data	D3	Demonstrate competence in the use of information technology
B4	Debate ethical and legal issues in biomedical science	D4	Demonstrate a high level of numeracy and problem solving skills
B5	Develop a research project	D5	Manage a research project and use a range of research skills
B6	Critically assess health risk factors associated with working in a research or diagnostic laboratory		
B7	Propose new hypotheses relevant to discipline		
B8	Critically evaluate research findings in the context of the literature research		

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	

