

Programme Specification 2025-26

1.	Programme title	MSc Biomedical Science (Medical Microbiology)
2.	Awarding institution	Middlesex University
3a	Teaching institution	Middlesex University London
3b	Language of study	English

4a	Valid intake dates and mode of study
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Mode of Study	Cohort	Delivery Location	Duration
Full-time (FT)	Semester 1	Hendon	1 Years
Part-time (PT)	Semester 1	Hendon	2 Years

4c	Delivery method	On Campus/Blended Learning
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5. Professional/Statutory/Regulatory body (if applicable)
Institute of Biomedical Science (IBMS)

6.	Apprenticeship Standard (if applicable)	N/A
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7. Final qualification(s) available
Target Award Title(s)
MSc Biomedical Science (Medical Microbiology)
Exit Award Title(s)
PGCert Biomedical Science
PGCert Biomedical Science (Medical Microbiology)
PGCert Biomedical Science (Medical Microbiology)
PGDip Biomedical Science (Medical Microbiology)

8. Academic year effective from	2025-26
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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. *
- ii. Applicants with other qualifications and / or substantial work experience in biomedical science will also be considered under the Recognition of Prior Learning (RPL) scheme.
- iii. Overseas Candidates should also be competent in English and have achieved, as a minimum, one of the following standards: IELTS 6.5 (with minimum 6.0 in all components); TOEFL 84). An important component of assessment throughout the programme is the ability for students to communicate clearly with flexibility and precision, progress arguments with clear organisation of evidence, and integrate theory, practice and empirical evidence. This is indicative of an English proficiency level equivalent to an IELTS 7.0.

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.

*Appropriate example subjects for all programmes are as follows:

Biomedical Science, Microbiology, Biotechnology and Medical Laboratory Technology/Science and other Life Science degrees with a significant level of microbiology taught elements.

Principle of fair admission

The University aims to ensure that its admissions processes are fair, open and transparent and aims to admit students who, regardless of their background, demonstrate potential to successfully complete their chosen programme of study where a suitable place exists and where entry criteria are met. The University values diversity and is committed to equality in education and students are selected on the basis of their individual merits, abilities and aptitudes. The University ensures that the operation of admissions processes and application of entry criteria are undertaken in compliance with the Equality Act.

We take a personalised and fair approach to how we make offers. We feel it's important that our applicants continue to aspire to achieving great results and make offers which take into account pieces of information provided to us on the application form.

This includes recognition of prior learning and experience. If students have been working, or they have other learning experience that is relevant to their programme, then we can count this towards their entry requirements and even certain modules once they start studying.

10. Aims of the programme

The programme aims to:

This programme aims to provide students with the comprehensive knowledge and employability skills to diagnose, treat and control the transmission of infectious diseases. The programme equips students with a critical understanding of emerging and re-emerging infectious diseases and control measures. The specialist skills offered by the programme prepare students to combat current and future challenges in infectious disease outbreak investigation, working as Biomedical scientists in medical microbiology specialised in diagnosis, epidemiology and vaccine design. Such roles were instrumental in the

management of the SARS-CoV-2 pandemic.

The programme further prepares students as independent researchers in industry/ academia and leadership roles in diagnostic laboratories or the life science sector by providing them with a mastery of fundamental principles and recent advances in biomedical science within Medical Microbiology. The programme provides a sound knowledge of the mechanisms underpinning major pathological processes and modern technologies used to diagnose and solve complex problems in infectious disease investigation. Students will learn laboratory management, quality control, safe microbiology practice, research, and statistical methods, and critically evaluate legal and ethical issues in human and animal research. The programme also focuses on developing skills to critically evaluate current research literature, lifelong learning, communication, teamwork, writing, and presentation. In addition, on completion of the MSc project, students will have acquired the necessary skills to generate a hypothesis, design experiments to test the hypothesis, critical analysis, and practical skills for research.

The programme is IBMS accredited, so, this degree enables students to undertake an IBMS registration training portfolio in IBMS-approved laboratories and subsequently register with the Health and Care Professions Council (HCPC) <https://www.hcpc-uk.org/registration/> to get a 'Biomedical Scientist' title.

Importantly, the programme enables students to access our state-of-the-art laboratories, hands-on experience from extensive laboratory sessions delivered by diagnostic Microbiology faculty experts and HCPC registered Biomedical Scientists from London Hospital laboratories.

11. Programme learning outcomes

Programme - Knowledge and Understanding

On completion of this programme the successful student will have a knowledge and understanding of:

1. Systematic identification of the aetiology from its clinical manifestation and diagnostic microbiology data and critically evaluate the pathogenicity of infectious agents in relation to their structure, function, genomics and mode of replication.
2. Health and safety and containment levels in a microbiology laboratory and propose effective evidence-based treatment and preventive measures to limit transmission.
3. Infection control strategies to overcome a community and hospital-based infection, drawing on current research.
4. Ethical issues in biomedical science, applying advanced ethical frameworks and principles to real-world scenarios and demonstrating a deep understanding of the moral and legal implications of biomedical research and practice.
5. Advanced diagnostic microbiology and bioanalytical techniques, demonstrating proficiency in applying these methods to complex biomedical problems and interpreting data to inform clinical decision-making.
6. Advanced research methodologies, demonstrating the ability to conduct independent research, analyze complex data sets, and contribute original knowledge to the field of biomedical science.

7. Advanced leadership theories and laboratory management principles, demonstrating the ability to lead and manage teams effectively, optimize operations, and contribute to strategic decision-making in a biomedical context.
Programme - Skills On completion of this programme the successful student will be able to:
8. Master various diagnostic microbiology techniques and critically evaluate the benefits and limitations in the context of sensitivity, specificity, improving patient care and turn-around time.
9. Generate ideas through the evaluation of appropriate literature, concepts, and principles
10. Analyse, present, and critically evaluate microbiology research data.
11. Design research project aligned with medical microbiology, demonstrating the ability to conduct independent research, manage project timelines, and contribute original findings to the field.
12. Perform advanced biomedical laboratory techniques, ensuring (quality control) accuracy, reliability, and adherence to best practices in the microbiology laboratory.
13. Present research findings within the context of existing literature, demonstrating the ability to contextualize results, identify gaps in knowledge, and propose new hypotheses relevant to the medical microbiology research theme.
14. 14. Critically evaluate research experiments or equivalent task-based activities relevant to the microbiology area, demonstrating technical proficiency, adherence to rigorous scientific standards, and the ability to contribute original insights to the field.

12. Teaching/learning methods
<p>Throughout semesters 1 and 2, learning is supported and enhanced by key concept videos and a flipped classroom learning approach, where students review learning resources at home before and after class, complemented by interactive activities during class sessions. The classes are designed to promote acquisition of knowledge and development of cognitive and practical skills. An understanding of the subject is assessed in both formative and summative methods.</p> <p>Peer-review, and self-reflection skills are also developed. An inclusive curriculum approach is fostered particularly through collaborative working which is embedded throughout the programme.</p> <p>Graduate competencies are integrated within all modules, and students are given a chance to apply the theory and skills they have learnt in class to practice via the Research project module, which encourages student employability. Employer engagement is encouraged and integrated throughout the programme design and delivery through authentic assessments, guest speakers and employability initiatives. The programme has a strong focus on both good health and wellbeing, as well as high quality education, in line with the UN's sustainable development.</p> <p>In semester 3, students acquire new knowledge, development cognitive and practical skills by conducting research.</p>

Finally, at the end of the module, students are expected to reflect on their learning and assessment feedback to solidify their understanding of the module topics.
Approx. number of timetabled hours per week (at each level of study, as appropriate), including on-campus and online hours FT 12hours PT 6 hours
Approx. number of hours of independent study per week (at each level of study, as appropriate) FT 32hours PT 16 hours
Approx. number of hours on placement (including placement, work-based learning or year abroad, as appropriate). .FT N/A PT N/A

13. Employability
13a Development of graduate competencies
13b Employability development
<p>Development of graduate competencies</p> <p>The approaches to learning ensure that graduate competencies are developed. Through problem-based learning approaches, students become adept at problem solving, develop into curious learners, working collaboratively with peers to innovate in group work. The course is designed to get students to apply innovative methodologies to address real-world issues and problems that affect their subject discipline. Technological agility is supported throughout with the use of various software and online platforms, which are integrated into group work, assessments and learning, as appropriate. The integration of group and individual presentations develops students' ability to communicate and become resilient and adaptable learners. This programme is embedded with extensive diagnostic laboratory sessions to provide hands-on experience and the programme is designed for students to develop transferable skills such as communication, presentation, critical writing and reflective writing through authentic assessments. This programme offers students with leadership theories and principles to prepare them as future leaders in their profession. The Research Project module capstone project allows students to demonstrate knowledge and multiple competencies acquired on the degree to address a real-world problem.</p> <p>Employability development</p> <p>Staff teaching on the programme undertake cutting edge research/practice in medical microbiology and related Biomedical Science areas. Students are encouraged to undertake research projects closely aligned to Microbiology area, so students have a chance to apply what they have learnt into practice, whilst also having the potential to research and impact practice. Combined, this ensures students gain a deeper understanding of sector expectations and enhances students' career readiness and graduate outcomes. A specific employability session has been embedded into the core module delivered by the guest speakers-Pathology Practice Educators on 'CV, job application and interview' which encourages students to map their current 'toolkit' in relation to specific skills. This programme also includes a subject specific careers session on 'further study and employment opportunities.</p> <p>In addition, Middlesex University's dedicated careers and employability service , which provides students with employability workshop sessions and personalised career support. This includes one-on-one appointments with employability advisers and resources such as CV and application feedback and mock interviews. It also offers resources like CV and application feedback and</p>

mock interviews. Middlesex University has a strong network with leading London hospital microbiology laboratories such as NHS Trusts, Health Service laboratories (HSL), The Doctors laboratories (TDL) and Healthcare laboratories (HCA). These connections provide students with valuable opportunities to engage with industry leaders, secure work placements, and build professional networks in their field.

13c Placement and work experience opportunities (if applicable)

N/A

13d Future careers / progression

Graduates in Biomedical Science specialising in medical microbiology have a wide array of career opportunities. They can work as Biomedical Scientists specialised in medical microbiology in various settings such as the NHS, private labs (Health Service Laboratories (HSL), The Doctors Laboratories (TDL), and Healthcare Laboratories (HCA)), academia, NHS Scientific Training Programmes (STP)/ clinical scientists, biomedical consultants, quality controllers and scientists in major pharmaceutical companies and life science sectors. In addition, the post-pandemic world has created new roles, such as microbiologists as communicators and science ambassadors.

Graduates can pursue various research roles such as MRes, MPhil and PhD level research career opportunities.

14. Assessment methods

Students' knowledge and understanding is assessed by both summative and formative assessments, which include seminar presentations, written assignments, including case-studies and laboratory reports. Students' skills are assessed by written assignments, presentations, and research project. Practical skills are assessed by laboratory reports and dissertation.

15. Programme Structure (level of study, modules, credits and progression requirements)

Structure is indicative for Part-time routes.

Students must take all of the compulsory modules and choose following programme requirements from the optional modules.

Non-compensatable modules are noted below.

Available Pathways

Not Applicable

Year 1

Year 1 Level 7 FT and PT

Code	Type	Module Title	Credits at FHEQ Level
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BMS4806	Compulsory	Infectious Agents and Diagnosis 2025-26	30 at Level 7
BMS4807	Compulsory	Human Infectious Diseases, Prevention and Control 2025-26	30 at Level 7
BMS4887	Compulsory	Experimental Design and Statistics 2025-26	15 at Level 7
BMS4477	Compulsory	Bioethics 2025-26	15 at Level 7
BMS4977	Compulsory	Advanced Bioanalytical Techniques 2025-26	15 at Level 7
BMS4677	Compulsory	Leadership and Management 2025-26	15 at Level 7
BMS4997	Compulsory	Research Project 2025-26	60 at Level 7

Year 2

Year 2 Level 7 PT

Code	Type	Module Title	Credits at FHEQ Level
BMS4977	Compulsory	Advanced Bioanalytical Techniques 2026-27	15 at Level 7
BMS4677	Compulsory	Leadership and Management 2026-27	15 at Level 7
BMS4887	Compulsory	Experimental Design and Statistics 2026-27	15 at Level 7
BMS4997	Compulsory	Research Project 2026-27	60 at Level 7
BMS4477	Compulsory	Bioethics 2026-27	15 at Level 7

*Please refer to your programme page on the website re availability of option modules

16. Programme-specific support for learning

We have specialist laboratory facilities for the development of practical skills. Our laboratories for research and postgraduate teaching are based at Hendon, London. These include a microbiology and molecular biology lab for techniques such as DNA sequencing, real-time PCR, electrophoresis, Tissue Culture facility, flow cytometer as well as a fully equipped proteomics facility and MALDI-ToF. Access to specialist journals will be provided by Middlesex University Library. Applicants with a disability can enter the programme following an assessment of their needs to determine if they can work safely in the laboratory.

17. HECos code(s)

100265: Biomedical Sciences

18. Relevant QAA subject benchmark(s)

Biomedical Science and Biomedical Sciences 2023

19. University Regulations

This programme will run in line with general University Regulations: [Policies | Middlesex University](#)

This programme will run in line with general University regulations, which can be found here: [Policies | Middlesex University](#).

20. Reference points

1. 2031 Learning Framework
2. Graduate Competencies
3. IBMS (2024) Criteria and Requirements for the Accreditation and Re-accreditation of MSc degrees. IBMS.
4. Quality Assurance Agency (2020) QAA Master's Degree Characteristics. London, QAA
5. United Nations Sustainable Development Goals and its 2030 Agenda for Sustainable Development
6. QAA Subject benchmark statement (March 2023)-Biomedical Science and Biomedical Sciences

21. Other information (if applicable)

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 they take 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 Biomedical Science (Medical Microbiology)

Programme learning outcomes

Knowledge and understanding

A 1	Systematic identification of the aetiology from its clinical manifestation and diagnostic microbiology data and critically evaluate the pathogenicity of infectious agents in relation to their structure, function, genomics and mode of replication.
A 2	Health and safety and containment levels in a microbiology laboratory and propose effective evidence-based treatment and preventive measures to limit transmission.
A 3	Infection control strategies to overcome a community and hospital-based infection, drawing on current research
A 4	Ethical issues in biomedical science, applying advanced ethical frameworks and principles to real-world scenarios and demonstrating a deep understanding of the moral and legal implications of biomedical research and practice.
A 5	Advanced diagnostic microbiology and bioanalytical techniques, demonstrating proficiency in applying these methods to complex biomedical problems and interpreting data to inform clinical decision-making.
A 6	Advanced research methodologies, demonstrating the ability to conduct independent research, analyze complex data sets, and contribute original knowledge to the field of biomedical science.
A 7	Advanced leadership theories and laboratory management principles, demonstrating the ability to lead and manage teams effectively, optimize operations, and contribute to strategic decision-making in a biomedical context.

Skills

B 1	Master various diagnostic microbiology techniques and critically evaluate the benefits and limitations in the context of sensitivity, specificity, improving patient care and turn-around time.
B 2	Generate ideas through the evaluation of appropriate literature, concepts, and principles.
B 3	Analyse, present, and critically evaluate microbiology research data.
B 4	Design research project aligned with medical microbiology, demonstrating the ability to conduct independent research, manage project timelines, and contribute original findings to the field.
B 5	Perform advanced biomedical laboratory techniques, ensuring (quality control) accuracy, reliability, and adherence to best practices in the microbiology laboratory
B 6	Present research findings within the context of existing literature, demonstrating the ability to contextualize results, identify gaps in knowledge, and propose new hypotheses relevant to the medical microbiology research theme.

