

## MSc Biomedical Science (Infection and Immunity)

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### Programme Specification



<b>1. Programme title</b>	MSc Biomedical Science (Infection and Immunity)
<b>2. Awarding institution</b>	Middlesex University
<b>3. Teaching institution</b>	Middlesex University (Hendon)
<b>4. Details of accreditation by professional/statutory/regulatory body</b>	
<b>5. Final qualification(s) available</b>	MSc Biomedical Science (Infection and Immunity) PGCert Biomedical Science (Infection and Immunity) PGCert Biomedical Science PG Dip Biomedical Science (Infection and Immunity)
<b>6. Year of validation / last review</b> <b>Year of amendment</b>	2020-2021
<b>7. Language of study</b>	English
<b>8. Mode of study</b>	Full-time (FT) Part-time (PT)

#### **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 that incorporates microbiology.
- 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. Past learning or experience will be mapped against existing programme modules within the programme and the mapping will be considered at the Faculty RPL committee.
- iii. Overseas Candidates should also be competent in English and have achieved, as a minimum, one of the following standards: IELTS-6.5 with no less than 6 in each individual component; 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:

- Facilitate the development of specialist knowledge of the fundamental principles and recent advances in infection and immunity which are required for careers in infection control, pharmaceutical industries and academia.
- Give students a thorough grounding in the molecular and cellular mechanisms underpinning the immune response to a variety of different infectious agents.
- Enable students to develop a high level of understanding of the aetiology, transmission, pathogenesis and control of human infectious disease.
- Provide students with sufficient detailed information about the modern technologies used in diagnostics, including the analysis of large data sets and research into product development, to enable them to apply these to complex problem solving in the investigation and treatment of disease.
- Enable students to understand and use the principles of laboratory management, safety, quality control, evaluation of ethics relating to research and use of statistical methods in their professional lives.
- Develop the students specialist practical and analytical skills to design and implement an individual research project in the area of infection and immunity.

## 11. Programme outcomes\*

### A. Knowledge and understanding

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

- A1.** The cellular and molecular mechanisms underlying the immune response to infection.
- A2.** The transmission, epidemiology, pathogenesis and control of common human infectious diseases.
- A3.** The theories and practices required to become an ethical leader.
- A4.** The application of different research methods

### Teaching/learning methods

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

### Assessment methods

Students' knowledge and understanding is assessed by both summative and formative assessments, which include both individual and group presentations, written assignments including laboratory reports, critical reviews and seen and unseen practical and theory examinations.

### B. Skills

On completion of this programme the successful student will be able to:

### Teaching/learning methods

Students learn cognitive and practical skills through the use of small and large group

**B1.** Analyse, present, judge, interpret and critically evaluate biomedical data.

**B2.** Design and carry out a research project to test a novel hypothesis relevant to discipline.

**B3.** Demonstrate a comprehensive understanding of advanced biomedical laboratory techniques in accordance with health and safety guidelines

**B4.** Demonstrate effective communication and presentation skills both individually and as part of a team.

sessions incorporating group discussion, problem solving, peer presentations, videos and online presentations. Students will also undertake a range of different laboratory sessions in order to develop competency in a range of specialist bioanalytical techniques.

Students learn research skills through undertaking a research project supervised by an appropriately trained and subject specific research supervisor. Supervision will include both individual and group sessions enabling the student to design a project to test a specific hypothesis, including consideration of the inherent ethical and health and safety implications and the use of appropriate statistical analysis. During their studies students are also expected to undertake independent study in order to consolidate and enhance their learning and enable critical review. Critical evaluation is taught through the use of journal clubs and group discussion sessions.

#### **Assessment methods**

Students' cognitive skills are assessed by written work incorporating problem solving, report and project writing including statistical analysis, examinations, and submission of a research dissertation. The research dissertation is assessed for the synthesis of new ideas and hypotheses out of evidential findings. Ethical and Health and safety considerations relevant to each individual project are addressed in the form of an application for ethical approval to Middlesex University which also incorporates an evaluation of risk to health and safety. Communications skills are assessed by both individual and group presentations.

Students' practical skills are assessed by the preparation of laboratory reports which typically include an introduction requiring an extensive literature search, an analysis of data, interpretation of data using statistical methods and a discussion of implications of the data for future directions in the field.

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

### 12. 1 Overall structure of the programme

This programme can be studied over either one-year full time or two years part time.

<b>FT MSc Biomedical Science (Infection and Immunity)</b>				
Year 1				
Semester 1	BMS4517 (30c) Immunology		BMS4887 (15c) Experimental Design and Statistics	BMS4977 (15c) Advanced Bioanalytical Techniques
Semester 2	BMS4427(15c) Human Infectious Diseases	BMS4437 (15c) Control of Infectious Disease	BMS4677 (15c) Leadership and Management	BMS4777 (15c) Biomedical Ethics and Law
Semester 3	BMS4997 (60c) Research Project			

<b>PT MSc Biomedical Science (Infection and Immunity)</b>				
Year 1			Year 2	
Semester 1	BMS4517 (30c) Immunology		BMS4887 (15c) Experimental Design and Statistics	BMS4977 (15c) Advanced Bioanalytical Techniques
Semester 2	BMS4427 (15c) Human Infectious Disease	BMS4437 (15c) Control of Infectious Disease	BMS4677 (15c) Leadership and Management	BMS4777 (15c) Biomedical Ethics and Law
Semester 3			BMS4997 (60c) Research Project	

PT students must take the modules in the order specified above. There is no possibility to swap years 1 and 2.

**Exit awards only.**

<b>PGCert Biomedical Science (Infection &amp; Immunity)</b>		
For this award students must pass the following modules:		
BMS4517 (30c) Immunology	BMS4437 (15c) Control of Infectious Disease	BMS4427 (15c) Human Infectious Diseases
<b>PGCert Biomedical Science</b>		
For this award students must pass:		
Any module combination other than the one above, totalling 60 -105 credit points.		

<b>FT PGDip Biomedical Science (Infection and Immunity)</b>				
Year 1				
Semester 1	BMS4517 (30c) Immunology		BMS4887 (15c) Experimental Design and Statistics	BMS4977 (15c) Advanced Bioanalytical Techniques
Semester 2	BMS4427 (15c) Human Infectious diseases	BMS4437 (15c) Control of infectious disease	BMS4677 (15c) Leadership and Management	BMS4777 (15c) Biomedical Ethics and Law

<b>PT PGDip Biomedical Science (Infection and Immunity)</b>				
Year 1			Year 2	
Semester 1	BMS4517 (30c) Immunology		BMS4887 (15c) Experimental Design and Statistics	BMS4977 (15c) Advanced Bioanalytical Techniques
Semester 2	BMS4427 (15c) Human Infectious Disease	BMS4437 (15c) Control of Infectious Disease	BMS4677 (15c) Leadership and Management	BMS4777 (15c) Biomedical Ethics and Law

The total number of credits required for an award is: 60 credits for a PGCert;  
120 for the PGDip; and 180 for the MSc.

<b>12.2 Levels and modules</b>		
Level 7		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
BMS4517 Immunology  BMS4427 Human Infectious disease  BMS4437 Control of Infectious disease  BMS4677 Leadership and Management  BMS4777 Biomedical Ethics and Law  BMS4887 Experimental Design and Statistics  BMS4977 Advanced Bioanalytical Techniques  BMS4997 Research Project	None	Students must attain a minimum of 105 credit points, including BMS4887, before they can progress onto the project stage. i.e. take BMS4997.

<b>12.3 Non-compensatable modules</b>	
Module level	Module code
7	BMS4517, BMS4427, BMS4437, BMS4677, BMS4777, BMS4887, BMS4977, BMS4997

<b>13. Information about assessment regulations</b>
<p>The course abides by the Middlesex University regulations. All assessments will be carried out and written work marked and moderated in line with the code of assessment practice which can be found in the section M of the Middlesex University regulations.</p> <p><a href="https://www.mdx.ac.uk/about-us/policies/university-regulations">https://www.mdx.ac.uk/about-us/policies/university-regulations.</a></p>

<b>14. Placement opportunities, requirements and support</b>
N/A

### 15. Future careers / progression

The programme should appeal to graduates interested in developing their knowledge and skills in the field of infection and immunity for a career in the healthcare sector, academia, or industrial research and development. They might also be expected to find employment in the fields of infection control and vaccine and assay development within the pharmaceutical Industry.

### 16. 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 DNA sequencing, real-time PCR, electrophoresis, Tissue Culture facility, Accuri C6 flow cytometer 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.

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. This will be administered by the Dyslexia and Disability Service in conjunction with the programme leader.

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.

### 17. JACS code (or other relevant coding system)

B900

### 18. Relevant QAA subject benchmark group(s)

Biomedical Science

### 19. Reference points

The following reference points were used in designing the programme:

#### Internal Documentation:

1. Middlesex University (2006) *Learning Framework Document*, London, MU
2. Middlesex University (2019) *Middlesex University Regulations*. London, MU
3. Middlesex Learning and quality enhancement Handbook

#### External Documentation:

4. Quality Assurance Agency (2014) UK Quality Code for Higher Education
5. Quality Assurance Agency (2015) Master's degree characteristics statement



## 20. 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 rest of your programme handbook and the university regulations.



Module Title	Module Code	A1	A2	A3	A4	B1	B2	B3	B4
		Human Infectious disease	BMS4427		x			x	
Control of Infectious disease	BMS4437		x			x		x	
Immunology	BMS4517	x				x		x	x
Leadership and Management	BMS4677			x					
Biomedical Ethics and Law	BMS4777			x					
Experimental Design and Statistics	BMS4887				x	x	x		
Advanced Bioanalytical Techniques	BMS4977					x		x	
Research Project	BMS4997	x	x		x	x	x	x	x