



**1. Programme Title(s):**

MSc in Infection and Immunity

Postgraduate Certificate in Infection and Immunity (available as an interim/exit award only)

**2. Awarding body or institution:**

University of Leicester

**3. a) Mode of study**

Full time or part time

**b) Type of study**

Campus-based

**4. Registration periods:**

The normal period of registration is **One Year** full time and **27 months** part time

The maximum period of registration is **Two Years** full time and **48 months** part time

**5. Typical entry requirements:**

- An honours degree (at least second class) in a biological science (e.g. Biochemistry, Biomedical Sciences, Microbiology or Immunology), or
- A BTech with experience in a field related to infection and immunity, such as a health service or biopharmaceutical laboratory, or
- A medical or veterinary degree provided that the course included significant elements of molecular biology, microbiology and immunology

Students for whom English is not their first language are required to meet the minimum standard set by the University of Leicester (as laid down in [Senate Regulation 1](#): Regulations governing minimum entry qualifications and language requirements for taught programmes of study).

Acceptable evidence of this includes:

- A first degree at a UK university,
- GCSE/O Level English Language at Grade C or above.
- WASSCE (West African Senior School Certificate Examination) English Grade 6
- An overall score of 6.5 in the British Council IELTS test (International English Language Testing System)
- A score of 90 in the Internet-based Test (IBT)) in TOEFL (Test of English as a Foreign Language)

**6. Accreditation of Prior Learning:**

No accreditation of prior learning is accepted for exemptions from modules on this programme.

**7. Programme aims:**

The programme aims:

- To respond to an international need for research scientists with an understanding of immunology and infectious disease who have the skills and experience to apply a molecular approach to the study of Infectious Disease.
- To give students sufficient direct experience of research (during a six -month project placement within a research laboratory) to prepare them for direct employment as

research scientists or for entry to a higher research degree (e.g. PhD) in the field of infection and immunity research (MSc only).

- iii) To raise students' competence and confidence by providing a positive learning environment where they actively participate in their own academic development and develop their research skills.

**8. Reference points used to inform the programme specification:**

- University of Leicester Learning and Teaching Strategy 2016-20
- QAA Master's Degree Characteristics Statement Sep 2015
- Framework for Higher Education Qualifications (FHEQ)
- Department of Infection, Immunity and Inflammation Teaching Team and Exam Board Reports
- University of Leicester Periodic Developmental Review Report, 2012
- External Examiners' Reports
- Student Feedback Survey
- First Destination Survey
- The WHO Global Burden of Disease Study highlighting global importance of communicable diseases
  - [http://www.who.int/topics/global\\_burden\\_of\\_disease/en/](http://www.who.int/topics/global_burden_of_disease/en/)
  - [http://www.who.int/healthinfo/global\\_burden\\_disease/2004\\_report\\_update/en/index.html](http://www.who.int/healthinfo/global_burden_disease/2004_report_update/en/index.html) (Section 2 "Causes of death").

**9. Programme Outcomes:**

Note:- Unless otherwise stated in the tables below, these outcomes apply to both the MSc and to the PGCert that is described in Section 13

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
<b><i>(a) Discipline specific knowledge and competencies</i></b>		
<b>Knowledge</b>		
Explain a wide range of theories and mechanisms that provide the basis of research on infection and immunity	Lectures, tutorials, poster presentations, laboratory based practicals, extended research project (MSc only).	Module examinations, short written reports, practical write-ups, presentations, tutorial performance, extended essay on pre-set topic, research project dissertation (MSc only).
<b>Concepts</b>		
Explain and exemplify the molecular and cellular biology and pathological mechanisms that underlie a wide range of communicable human diseases	Lectures, tutorials, extended research project (MSc only).	Module examinations, short written reports, presentations, tutorial performance, extended essay on pre-set topic, research project dissertation (MSc only).

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
<b>Techniques</b>		
Demonstrate practical and theoretical competence in key experimental methods, competent use of standard and specialized equipment, knowledge of safety procedures and safety assessment.	Lectures, tutorials, laboratory classes, laboratory project supervision (MSc only), practical demonstrations and supervision.	Module examinations, reports on practical classes, project progress reports (MSc only), and research project dissertation (MSc only).
<b>Critical analysis</b>		
Critically appraise complex theoretical and technical evidence accurately and rigorously.	Lectures, tutorials, research project (MSc only).	Examinations, short written reports, and research project dissertation (MSc only).
<b>Presentation</b>		
Demonstrate competence in written, oral and poster presentation methods, ability to discriminate between relevant and non-relevant material, prioritisation, and presentation in a logical sequence.	Tutorials, research project supervision (MSc only), specimen material on Blackboard virtual learning environment.	Oral and poster presentations, and research project dissertation (MSc only).
<b>Appraisal of evidence</b>		
Analyse and appraise scientific results critically in the context of the published literature.	Tutorials, laboratory based practicals and research project supervision (MSc only).	Short written reports, reports on practical classes, oral presentations and research project dissertation (MSc only).
<b>Other subject &amp; professional skills</b>		
In the Erasmus programme, demonstrate the capacity to work in a research laboratory and study in another European University	Research project placement in a research laboratory in another European University	Practical work and placement report in a European University.
<b>(b) Transferable skills</b>		
<b>Research skills</b>		
Perform literature review, experimental design, essential laboratory methods, problem solving, data analysis, and statistical analysis.	Lectures, problem solving in tutorials and practical classes, research project supervision (MSc only).	Tutorial performance, reports on practical classes, research project dissertation (MSc only).
<b>Communication skills</b>		
Demonstrate competence at report writing, presentations, and poster creation.	Tutorials, practical classes, research project supervision (MSc only), peer marking, poster and oral presentations.	Tutorial performance, assessed practical reports, oral presentations, research project dissertation (MSc only).

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
<b>Data presentation</b>		
Synthesise and present information by a variety of graphical methods appropriate to a given audience.	Laboratory classes, statistics lectures and support, data presentation training during research project supervision (MSc only).	Laboratory practical reports, oral and poster presentations, research project dissertation (MSc only).
<b>Information technology</b>		
Apply information technology (IT) to the processing, presentation and handling of bibliographic, analytical and statistical information.	Laboratory classes, statistics lectures and support, bibliographic software training, bioinformatics and IT training during research project supervision (MSc only).	Laboratory practical reports, oral and poster presentations, research project dissertation (MSc only).
<b>Problem solving</b>		
Solve research problems	Lectures, problem solving in tutorials and practical classes, research project supervision (MSc only).	Tutorial performance, reports on practical classes, research project dissertation (MSc only).
<b>Working relationships</b>		
Demonstrate ability to work in groups/teams.	Tutorial group problem solving, practical classes in groups or pairs, research project supervision (MSc only)	Assessment of performance in tutorial groups, peer-assessed laboratory reports.
<b>Managing learning</b>		
Organize laboratory work and perform project management, and time management.	Laboratory practical classes. Supervision by personal tutor and (MSc only) by research project supervisor.	Laboratory practical reports, research project dissertation (MSc only).
<b>Career management</b>		
Apply knowledge and skills to long-term career goals and employability.	Supervision by personal tutor and (MSc only) by research project supervisor.	Student evaluation of the course by questionnaire at the end of Semester 1 and oral and written feedback on career destinations approximately 6 months after graduating. Incorporation of career destination data into considerations during the Annual Development Review process within the College.

#### 10. Special features:

This programme has been successful since its inception in 2007 in preparing a number of graduates for entry into PhD programmes in the fields of infection and immunity.

#### 11. Indications of programme quality:

This programme has been commended by the external examiner for the quality of its teaching and student support.

## 12. Scheme of Assessment

As defined in [Senate Regulation 6: Regulations governing taught postgraduate programmes of study](#)

### Approaches to assessment

A varied approach to assessment is used which allows students to demonstrate their knowledge and their own particular strengths, independent of their cultural and language background. Modules are assessed by essays, short written reports, presentations, lecture reports, posters and examinations. The formal examinations include multiple choice and short answer questions.

Work is second marked and moderated where appropriate.

## 13. Progression points

As defined in [Senate Regulation 6: Regulations governing taught postgraduate programmes of study](#)

### **Withdrawal**

In cases where a student has failed to meet a requirement to progress, he or she will be required to withdraw from the course

### **Exceptional exit from the course at the end of Semester 1.**

Students who pass the taught element of the course (the 60 credits of Semester 1), but are unable to undertake or complete the Semester 2 research project, are eligible for a Postgraduate Certificate in Infection & Immunity. This represents an exceptional exit route, and students are not permitted to register purely for this Postgraduate Certificate.

## 14. Rules relating to re-sits or re-submissions:

As defined in [Senate Regulation 6: Regulations governing taught postgraduate programmes of study](#)

Candidates will be allowed to re-sit examinations or resubmit course work in relation to an individual module on one occasion only. The number of modules where re-sits or resubmissions are allowed will be in accordance with Senate Regulation 6. The mark obtained for resubmitted work or an examination re-sit will be capped at 50%.

## 15. Additional information [e.g. timetable for admissions]

There will be two intakes per year (in approximately September and in January– the precise date to be agreed by the Board of Studies for College PGT Biosciences Programmes).

## 16. External Examiners

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports can be found [here](#).

## Appendix 1: Programme structure (programme regulations)

MSc - Total credits = 180 Duration = 12 months

Students normally take the course as a full-time 12 month course, but there is provision for students who wish to do so to take it over 2 years, taking the taught modules in Semester 1 of Year 1 and the research project in Semester 2 of year 2.

## Overview

The MSc in Infection and Immunity is a 1 year full-time course designed to provide detailed training both in the theory and practical techniques involved in studying the microbiology, immunology and molecular and cellular biology involved in communicable diseases. The 3 component modules of this programme are described in the module descriptions below (Appendix 2). The integration of these modules and the rationale behind them are described below.

Semester 1 comprises 2 compulsory taught modules (designated MB7308 and MB7309) running throughout Semester 1. Examinations and continuous assessment for these modules are spread evenly throughout Weeks 3 – 12.

Semester 2 comprises a 6-month project placement (Module MB7306) in a research laboratory within the University of Leicester.

The overall structure of the programme is complementary to that of the MSc Chronic Disease and Immunity programme which is run in parallel by the Department of Infection, Immunity & Inflammation.

### Semester 1

Code	Title	Credits
MB7308	Theory & Techniques	30
MB7309	Infection & Immunity	30

### Semester 2

MB7306	MSc Laboratory Research Project	120
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## Appendix 2: Module Specifications

See module specification database <http://www.le.ac.uk/sas/courses/documentation> and additional detail is provided below.

## **Semester 1**

### **Module MB7308 Theory & Techniques**

This module teaches the fundamental molecular and cellular mechanisms and techniques that are needed to study communicable diseases. Thirteen of the theory lectures are core lectures that are shared with the other laboratory-based life science MSc programmes currently run within the College of Medicine, Biological Sciences & Psychology i.e.

- Molecular Genetics,
- Cancer Cell and Molecular Biology,
- Molecular Pathology and Therapeutics of Cancer, and
- Chronic Disease and Immunity.

A series of tutorials emphasizes the links between the theory lectures and communicable disease progression.

This module also contains a series of six practicals, and data handling tutorials embedded in each of the practicals. This series is accompanied by technical demonstrations and a practical introduction to basic laboratory skills. It covers basic techniques in molecular biology and cell biology and gives insights into protein detection and cell culture.

This module is similar to the module MB7318 in the MSc Chronic Disease and Immunity, but the set of core lectures used is modified to give greater emphasis to prokaryotic rather than eukaryotic cell biology.

The practicals of Module MB7308 are shared with Module MB7318 of the MSc Chronic Disease & Immunity Programme

In the second half of Semester 1 (approximately weeks 7-12) case studies demonstrating more advanced topics in the theory and technology underpinning infection and immunity are performed, comprising research-based lectures, tutorials and student-led presentations.

### **Module MB7309 Infection & Immunity**

This module comprises a series of lectures and tutorials dealing with Medical Microbiology (with particular emphasis on AIDS, malaria, and tuberculosis and *Vibrio cholera*); and with the Immune Response to such infections (particularly with the fundamental mediators of the immune response and the mechanisms that underlie successful resistance to infection and tissue response to injury).

The Immune Response component of Module MB7309 is shared with Module MB7319 of the MSc Chronic Disease & Immunity Programme.

In the second half of Semester 1 (approximately weeks 7-12) case studies on more advanced subjects within the fields of infection and immunity are performed, comprising research-based lectures, tutorials and student-led presentations. These serve to integrate more basic material from the first half of the module with topical and “cutting-edge” developments on the interaction between pathological micro-organisms and the immune system and the involvement of this in the progression of communicable diseases.

## **Semester 2**

### **Module MB7306 MSc Laboratory Research Project**

This module comprises a six -month research project placement within the Department of Infection, Immunity and Inflammation; or a research laboratory within the College. Students choose a research project from a pool of submitted outlines after meeting with potential supervisors. Before starting the experimental work, students are required to submit (for approval) a document which summarises the background of the work to be undertaken, details the hypothesis to be tested and the experimental methods to be used. At the end of the experimental work, the student produces an assessed dissertation of up to 15,000 words.

Students may undertake an approved laboratory research project in a partner University under the Erasmus scheme as part of the Research Project module MB7306. Students are advised to avail themselves of the introductory language courses offered by the Language Centre and/or the intensive courses run by the host institution, prior to commencing the project. A mark for laboratory performance credits will be awarded by the partner institution: all other assessments will be marked by University of Leicester staff.