

**MSc Immunology**

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.

**Programme Information**

Programme Title	Immunology		
Award	MSc		
Programme code	A3UZA		
Awarding Institution	Imperial College London		
Teaching Institution	Imperial College London		
Faculty	Faculty of Medicine		
Department	Department of Medicine		
Mode and Period of Study	1 calendar year full-time (12 months)		
Cohort Entry Points	Annually in October		
Relevant QAA Benchmark Statement(s) and/or other external reference points	<a href="#">Master's Degrees in Medicine</a>		
Total Credits	ECTS:	90	CATS: 180
FHEQ Level	Level 7		
EHEA Level	2 <sup>nd</sup> cycle		
External Accreditor(s)	None		
<b>Specification Details</b>			
Student cohorts covered by specification	2016-2017		
Responsible Officer	Dr Sophie Rutschmann		
Date of introduction of programme	October 1998		
Date of programme specification/revision	August 2016		

## Description of Programme Contents

The MSc programme in Immunology provides students with knowledge in immunology in health and disease with advanced academics and laboratory research training in cellular and molecular immunology. The programme has an emphasis on the interface between the basic and clinical aspects of the subject. Students take 3 core modules focusing on “Immunity in Health”, 1 core practical mini-research project (MRP) module and 1 core module covering “Immunity in Disease”. The students then complete a six month laboratory based research project (LBRP).

The programme mainly prepares students for further advanced research (e.g. a PhD, medical school) and/or careers as research assistants.

## Learning Outcomes

### Knowledge

At the end of the programme, graduates should be able to:

- 1.1. Identify major immune players and mechanisms in health,
- 1.2. Recognise failures of the immune system that can lead to disease,
- 1.3. Explain ways of manipulating the immune system to prevent or treat disease,
- 1.4. Identify the players and mechanisms triggered during the immune response in infectious disease,
- 1.5. Plan and organise a sound experimental approach,
- 1.6. Explain the most prominent immunological techniques.

### ***Teaching/learning methods and strategies to achieve 1.1 – 1.6:***

Acquisition of:

- 1.1-1.4 is through a combination of seminars series (John Humphrey Seminar Series (JHSS) organised by the Division of Infection and Immunity during which external speakers present their research), keynote lectures (speakers from outside the Department of Medicine invited by the MSc programme to talk about their research. The students get interact with the speaker afterwards to discuss science and careers), group work (preparation of an experimental protocol, or of a poster presentation, or of a lay article or of a job interview), class and small group tutorials, and journal club (the programme’s own session in which students chose and present a scientific article at least once during the taught modules). and attending an external annual conference (British Society of Immunology or the Winter School in Immunology),
- 1.5&1.6 are acquired during the Mini-Research Project (MRP, module 3) through a combination of tutorial, group work sessions and experimental work. They are also acquired during the Laboratory-Based Research Project (LBRP, module 6) in the second part of the course.

Throughout the programme, the students have to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject

Summative assessment of the knowledge base is through a combination of unseen written examinations (1.1-1.4), the assessment of an individual MRP module report (1.5-1.6), an individual LBRP thesis (1.1-1.6), and a LBRP viva voce examination (1.1-1.6). Formative assessment will take place during group work, journal club, and small group tutorials.

### Intellectual Skills

At the end of the programme, graduates should be able to:

- 2.1. Evaluate immunological problems,
- 2.2. Generate and evaluate hypotheses using appropriate experimental design,
- 2.3. Identify potential experimental issues and perform efficient troubleshooting,
- 2.4. Critically evaluate and interpret quantitative experimental data of variable quality,
- 2.5. Plan and perform clear and concise presentations,
- 2.6. Critically evaluate scientific publications.

***Teaching/learning methods and strategies to achieve 2.1 – 2.6:***

Acquisition of:

Intellectual skills are developed by all the teaching and learning methods used throughout the programme. Analytical and problem solving skills (2.1, 2.3, 2.4, and 2.6) are promoted through the use of tutorials, data interpretation sessions, journal club and group work session (all described above). Experimental design skills (2.2) are developed in lectures and practical work in the taught component of the course, and subsequently in the LBRP. Presentation skills (2.5) are acquired during journal club, group tasks, small group tutorials, keynote lectures (all described above) and during presentation in the LBRP hosting laboratory.

Individual and/or group feedback is given to students by various members of staff and/or examiners on all work produced including oral presentations, essays set by individual tutors, and group tasks (2.1-2.6). Summative feedback during the MRP module will assess 2.2-2.5. The written assessments provide important summative feedback on student progress (2.1, and 2.4-2.6). Formative feedback from colleagues in the hosting laboratory and summative feedback in the form of the thesis and viva voce will assess 2.1-2.6.

**Practical Skills**

At the end of the programme, graduates should be able to:

- 3.1. Identify and plan best experimental approach,
- 3.2. Retrieve appropriate protocol from the literature,
- 3.3. Safely execute experiments and implement good laboratory practice,
- 3.4. Generate and analyse experimental data,
- 3.5. Demonstrate computer-based abilities,
- 3.6. Demonstrate awareness of the use of statistics in biosciences.

***Teaching/learning methods and strategies to achieve 3.1-3.6:***

Acquisition of:

3.1-3.6 is through a combination of practical lectures, tutorial sessions and group work, via the MRP bench work, the data interpretation sessions and the LBRP.

Summative assessment of practical skills is through the MRP and LBRP Assessments (3.1-3.6). Formative feedback will be given by teaching staff and members of the hosting laboratory during the MRP module and the LBRP (3.1-3.6).

**Professional Skills**

At the end of the programme, graduates should be able to:

- 4.1. Generate written reports and perform efficient oral presentations,
- 4.2. Demonstrate computer fluency in specific programmes,
- 4.3. Organise and interpret data of various quality,

- 4.4. Demonstrate awareness of the human skills required to work efficiently in a team,  
 4.5. Summarise and critically appraise own and others work,  
 4.6. Demonstrate strong management of time and focus.

**Teaching/learning methods and strategies to achieve 4.1-4.6:**

Acquisition of:

4.1-4.6 is via small group tutorials, group work, journal club, MRP module, LBRP, and revision sessions.

Summative assessment of professional skills is through MRP individual reports and oral presentation, through LBRP thesis and viva, and data interpretation written assessment. Formative feedback for 4.1-4.6 will be provided in the small group tutorials, during the MRP module, group work, class and small group tutorials, revision sessions and the LBRP.

**Entry Requirements**

Academic Requirement	Normally a UK Bachelor's degree at 2:2 or equivalent in an appropriate biological science subject (e.g. Biology, Biochemistry, Biomedical Sciences, medicine, dentistry or veterinary science)
Additional Requirements	None

Applicants who do not meet the academic requirements above but who have substantial relevant clinical or relevant professional experience may be admitted following completion of a 'Special Qualifying Exam' (SQE)

Applicants might be invited to attend a post-application interview.

English Requirement	IELTS 6.5 with a minimum of 6.0 in each element or equivalent
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**Learning & Teaching Strategy**

Scheduled Learning & Teaching Methods	<ul style="list-style-type: none"> <li>• Lectures &amp; keynote lectures,</li> <li>• Class tutorials,</li> <li>• Small group tutorials,</li> <li>• Group work sessions,</li> <li>• Journal Club,</li> <li>• Seminar series,</li> <li>• BSI annual conference or MSc Winter School in Immunology,</li> <li>• Laboratory teaching,</li> <li>• Computer-based practical workshops,</li> <li>• Group revision sessions.</li> </ul>
E-learning & Blended Learning Methods	<ul style="list-style-type: none"> <li>• In Course formative assessment on Blackboard.</li> <li>• Peerwise</li> <li>• Online tutorials on Blackboard</li> </ul>

Project and Placement Learning Methods	<ul style="list-style-type: none"> <li>• Laboratory based research project (LBRP)</li> <li>• A mini research project (MRP)</li> </ul>				
<b>Assessment Strategy</b>					
Assessment Methods	<ul style="list-style-type: none"> <li>• Written examinations</li> <li>• Data interpretation exercises</li> <li>• Essays</li> <li>• Research paper critique</li> <li>• Viva voce</li> </ul>				
<b>Academic Feedback Policy</b>					
Students can expect to receive feedback within 15 term-time days.					
In addition to the examinations, the students are assessed informally, with the marks not contributing to their final result (formative feedback).					
<b>Re-sit Policy</b>					
Students will be permitted to re-enter a failed examination or resubmit a piece of failed coursework on a single occasion. Examination re-sits will only be available at the next available sitting (i.e. the following academic year).					
<b>Mitigating Circumstances Policy</b>					
The programme will follow the procedures for mitigating circumstances as described in the College Regulations and in the mitigating circumstances procedure. Details of which can be found at: <a href="http://www3.imperial.ac.uk/registry/proceduresandregulations/policiesandprocedures/examinationassessment">http://www3.imperial.ac.uk/registry/proceduresandregulations/policiesandprocedures/examinationassessment</a>					
<b>Programme Structure</b>					
Full-time	Pre-session	Term One	Term Two	Term Three	Term Four
Core Modules	0	3	2	0	0
Projects	0	0	0	1	
<b>Assessment Dates &amp; Deadlines</b>					
Written Examinations	<p>Assessments of modules 1, 2 and 4 will take place in one single exam session at the end of module 4 in January.</p> <p>Assessment 5 will take place at the end of module 5 in February.</p>				
Coursework Assessments	Assessment of module 3 will take place at the end of module 3 in December.				

Project Deadlines	Submission Dates: Mini Research Project: last day of Module 3. Laboratory Based Research Project: end of August.	
Practical Assessments	The oral assessment for the MRP will take place during the last 2.5 days of the module.  The viva voce examination for the LBRP will take place at the end of Module 6 in September.	
<b>Assessment Structure</b>		
Module Title	ECTS	% Weighting
Innate Immunity in Health	7.5	8.3%
Adaptive Immunity in Health	7.5	8.3%
Mini Research Project (MRP)	7.5	8.3%
Immune Regulation	7.5	8.3%
Immunity in Disease	15	16.6%
Laboratory Based Research Project	45	50%
<b>Marking Scheme</b>		
<p>A student must:</p> <ul style="list-style-type: none"> <li>• Achieve a mark of at least 40% in each assessment</li> <li>• Achieve a pass mark of at least 50% in each module <ul style="list-style-type: none"> <li>○ Students may be condoned in one module (excluding module 6 Laboratory Based Research Project) with an aggregate mark of at least 40% providing the overall aggregate mark for the programme is at least 50%</li> </ul> </li> <li>• Achieve a mark of at least 50% in the thesis of the Laboratory Based Research Project</li> </ul> <p><b>Final Degree Classifications</b></p> <p>The MSc can be awarded as a pass, merit or distinction.</p> <p>In order to be awarded a result of merit, a candidate must achieve an overall aggregate mark for the programme of at least 60% and an aggregate mark of at least 60% in the Laboratory Based Research Project.</p> <p>In order to be awarded a result of distinction, a candidate must achieve an overall aggregate mark for the programme of at least 70% and an aggregate mark of at least 70% in the Laboratory Based Research Project.</p>		

Module List												
Code	Title	Core/ Elective	Year	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	% Written Exam	% Course- work	% Practical	FHEQ Level	ECTS
	Innate Immunity in Health	Core	1	54	133.5	0	187.5	100%	0%	0%	7	7.5
	Adaptive Immunity in Health	Core	1	58	129.5	0	187.5	100%	0%	0%	7	7.5
	Mini Research Project (MRP)	Core	1	75	112.5	0	187.5	0%	50%	50%	7	7.5
	Immune Regulation	Core	1	34	153.5 <sup>1</sup>	0	187.5	100%	0%	0%	7	7.5
	Immunity in Disease	Core	1	114	261	0	375	100%	0%	0%	7	15
	Laboratory Based Research Project (LBRP)	Core	1	0	1125	0	1125	0%	85%	15%	7	45

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## Supporting Information

The Programme Handbook is available at:

<http://www1.imperial.ac.uk/departementofmedicine/postgraduate/mscimmunology/>

The Module Handbook is available at:

<http://www1.imperial.ac.uk/departementofmedicine/postgraduate/mscimmunology/>

The programme's competency standards documents can be found at:

<http://www1.imperial.ac.uk/departementofmedicine/postgraduate/mscimmunology/>

The College's entry requirements for postgraduate programmes can be found at:

<http://www3.imperial.ac.uk/entryrequirements/graduate>

The College statement on pastoral care and welfare support is available at:

<http://www.imperial.ac.uk/student-space/>

Details of Departmental arrangements for pastoral care and welfare support is available at:

The College's Quality & Enhancement Framework is available at:

<http://www3.imperial.ac.uk/registry/proceduresandregulations/qualityassurance>

The programme is consistent with the Qualifications Framework of the European Higher Education Area which is available at:

<http://www.ehea.info/Uploads/qualification/QF-EHEA-May2005.pdf>