

Programme Specification

MSci Microbiology

For students entering Part 1 in September 2022

UCAS Code: C503

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This document sets out key information about your Programme and forms part of your Terms and Conditions with the University of Reading.

Awarding Institution	University of Reading
Teaching Institution	University of Reading
Length of Programme	4 years
Length of Programme with placement/year abroad	MSci Microbiology with Professional Experience - 5 years (UCAS Code: C504)
Accreditation	N/A

Programme information and content

The MSci Microbiology programme is a four-year programme that is designed to provide you with a comprehensive understanding of the fascinating world of microbes and their crucial roles in the biosphere. The programme will allow you delve deeper into the genetics, biochemistry and cell biology of microbes and explore their impact on human health, food and the environment. Students will engage in cutting-edge research and gain hands-on experience with modern techniques and equipment in a hazard category 2 laboratory. The programme places emphasis on the practical application of microbiological knowledge to address global challenges, such as antimicrobial resistance, emerging infectious disease, food production and climate change. The programme also offers a strong practical focus, ensuring graduates are equipped to work safely and competently with microbiological samples. In addition, you will strengthen your core competencies and professional skills through the completion of a skills portfolio, access to placement opportunities and employer-led sessions embedded throughout the programme. By integrating both undergraduate and postgraduate education, you will be immersed in a research-intensive environment, engaging with cutting-edge science and advanced microbiological techniques. The final year is characterised by a substantial independent research project, where you will investigate complex microbial phenomena, often contributing to ongoing research initiatives. Under the guidance of experienced academics, you will utilise state-of-the-art laboratory facilities to explore innovative solutions to pertinent research questions. Overall, the programme will allow you to hone your analytical, technical and problem-solving skills, ensuring that you are well-prepared for professional and academic success in the dynamic field of microbiology.

Part 1:	In Part 1, students will gain an understanding of the basic concepts of modern microbiology. They will learn about the diversity of microbes, their structure, growth, impact and measures to control infectious disease. They will acquire the fundamental practical skills to work safely in a microbiology laboratory. This will be complemented by study of the structure and function of eukaryotic cells and genetic material. Key
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	<p>universal processes such as transcription, translation, gene regulation, energy production and metabolic pathways will be covered. In addition students will be trained in generic and microbiology specific transferable skills, including literature research, writing in different formats and numeracy.</p>
Part 2:	<p>In Part 2, the microbiology programme extends the student's understanding of how bacteria and viruses survive, multiply, interact with their environment and cause disease through core studies on their structure, molecular and cellular processes, and medical significance. These studies on microbial function are underpinned by modules covering molecular genetics and gene regulation, immunology and mammalian cell biology. Substantial practical content means that by the end of year 2 students should have good aseptic technique and acquired core practical skills in many aspects of Microbiology and Biochemistry. Summer placements may also be taken as an optional module.</p>
Placement/Study abroad year:	<p>You will have the opportunity to undertake a placement year and discover what it is like to work in a professional setting. This will allow you to develop your skills further, expand your network and enhance your career prospects. The school has numerous contacts with microbiology-related companies/organisations within and beyond the UK, ranging from government health agencies and pharmaceuticals to water treatment and biotechnology. Students can express their interest to the school and receive guidance and support throughout the placement application process.</p>
Part 3:	<p>Part 3 involves in-depth studies of selected aspects of microbial pathogenesis, gene regulation and specialised functions of bacterial cells. This final year aims to bring the student's understanding to the forefront of selected areas of exciting, current research and an appreciation of approaches used to facilitate advances in microbiology. An optional field trip offers students the valuable experience of sampling microbial biodiversity in the field and laboratory – recent trips have been to Iceland and Columbia. All students select an area of interest for their research project which may be a ‘wet’ laboratory or bioinformatics project, focus on communication of science e.g. in teaching or critical analysis of previously published literature. The project involves an extensive period of data collection and interpretation followed by preparation of an extended dissertation. This develops the students research, reasoning, critical analysis and presentation skills.</p>
Part 4:	<p>In the fourth year of the programme you will gain advanced scientific and technical skills to solve complex research questions. You will undertake an 80-credit research-intensive project over a period of five months. This substantial research project will provide you with the opportunity to independently plan, execute, analyse and communicate a research project in a specialised area of microbiology-related research. You will develop</p>

valuable transferable skills that are highly desirable for employers, offering you excellent preparation for postgraduate research or a wide variety of future careers.

Module information

Each part comprises 120 credits, allocated across a range of compulsory and optional modules as shown below. Compulsory modules are listed.

Part 1 Modules:

Module	Name	Credits	Level
BI1BAC2	Bacteriology and Virology	10	4
BI1BEC1	Building Blocks of Life	20	4
BI1BM12	Key Skills in Biomedicine	10	4
BI1S1	Introductory Microbiology	10	4

Also, students without AS Chemistry or an equivalent qualification must take:

Module	Name	Credits	Level
CH1FC1	Fundamental Concepts in Chemistry 1	10	4

Highly recommended modules (it is highly recommended that students take at least one of these):

Module	Name	Credits	Level
BI1BF1	Laboratory and Study Skills for Biomedicine	10	4
BI1BAB2	Metabolic and Practical Biochemistry	20	4

Your remaining credits will be made up of optional modules from selected modules from the School of Biological Sciences and across the University, subject to Programme Advisor approval and timetabling constraints. Students also have the option to select a language module.

Part 2 Modules:

Module	Name	Credits	Level
BI2BC45	Cells and Immunity	20	5
BI2BI45	Infectious Diseases	20	5
BI2BM45	Key Skills in Biomedicine 2	10	5
BI2BMG4	Molecular Genetics	20	5
BI2BR5	The Bacterial Cell	10	5

Your remaining credits will be made up of optional modules from selected modules from the School of Biological Sciences and across the University, subject to Programme Advisor

approval and timetabling constraints. Students also have the option to select a language module.

Modules during a placement year or study year (if applicable):

Module	Name	Credit	Level
BI2PEX	Professional Experience	120	5

Students may be permitted to undertake a placement year between Part 2 and Part 3 of the programme. In such cases students will transfer to a 5-year programme. The placement year should not normally be shorter than nine months full-time.

If you take a year-long placement or study abroad, Part 3 as described below may be subject to variation.

Part 3 Modules:

Module	Name	Credits	Level
BI3AM2	Applied Microbiology	20	6
BI3P1	Pathogens	20	6
BI3RP3	Research Project	40	6

The remaining 40 credits will be made up of optional modules from selected modules from the School of Biological Sciences or modules from an approved list, subject to timetabling constraints.

Part 4 modules:

Module	Name	Credits	Level
BI4APS1	Critical Analysis and Problem Solving	20	7
BI4ARP	Advanced Research Project	80	7
BI4PLE1	Project Planning, Laboratory Skills and Experimental Design	20	7

Optional modules:

The optional modules available can vary from year to year. An indicative list of the range of optional modules for your programme can be found online in the Course Catalogue. Details of optional modules for each part, including any additional costs associated with the optional modules, will be made available to you prior to the beginning of the Part in which they are to be taken and you will be given an opportunity to express interest in the optional modules that you would like to take. Entry to optional modules will be at the discretion of the University and subject to availability and may be subject to pre-requisites, such as completion of another module. Although the University tries to ensure you are able to take the optional modules in which you have expressed interest this cannot be guaranteed.

Additional costs of the programme

Participation in any residential field based optional modules offered, is subject to fees payable by the student.

If you undertake a Placement Year, associated costs will vary according to the nature and location of the placement and/or the study abroad host institution, and individual travel and subsistence arrangements.

Costs are indicative and may vary according to optional modules chosen and are subject to inflation and other price fluctuations. Estimates were calculated in 2023.

Placement opportunities

Placements:

You may be provided with the opportunity to undertake a credit-bearing placement as part of your Programme. This will form all or part of an optional module. You will be required to find and secure a placement opportunity, with the support of the University

Study Abroad:

You may be provided with the opportunity to undertake a Study Abroad placement during your Programme. This is subject to you meeting academic conditions detailed in the Programme Handbook, including obtaining the relevant permissions from your School, and the availability of a suitable Study Abroad placement. If you undertake a Study Abroad placement, further arrangements will be discussed and agreed with you.

Teaching and learning delivery:

You will be taught through lectures, seminars/tutorials, laboratory practical sessions and supervised project work, depending on the modules you choose.

The contact hours for your Programme are dependent on module choice. Information about module contact hours can be located in the relevant module description.

Elements of your programme will be delivered via digital technology.

The scheduled teaching and learning activity hours and amount of technology enhanced learning activity for your programme will depend upon your module combination. In addition, you will undertake some self-scheduled teaching and learning activities, designed by and/or involving staff, which give some flexibility for you to choose when to complete them. You will also be expected to undertake guided independent study. Information about module study hours including contact hours and the amount of independent study which a student is normally expected to undertake for a module is indicated in the relevant module description.

Accreditation details

N/A

Assessment

The programme will be assessed through a combination of written examinations, coursework (including class tests) and oral examinations. Further information is contained in the individual module descriptions.

Progression

Part 1

To gain a threshold performance at Part 1 and qualify for the CertHE, a student shall normally be required to achieve an overall average of 40% over 120 credits taken at Part 1 and a mark of at least 30% in individual modules amounting to not less than 100 credits. In order to progress from Part 1 to Part 2 a student shall normally be required to achieve a threshold performance at Part 1.

Part 2

To achieve a threshold performance at Part 2, a student shall normally be required to:

- (i) Obtain a weighted average of 40% over 120 credits taken in Part 2; and
- (ii) Obtain marks of at least 40% in individual modules amounting to at least 80 credits taken in Part 2; and
- (iii) Obtain marks of at least 30% in individual modules amounting to at least 120 credits, except that a mark below 30% may be condoned in no more than 20 credits of modules owned by the Department of Mathematics and Statistics.

In order to progress from Part 2 to Part 3, a student must achieve:

- (iv) a threshold performance at Part 2; and
- (v) achieve an overall average of 50% over 120 credits taken in Part 2 (of which not less than 100 credits should normally be at level 5 or above).

The achievement of a threshold performance at Part 2 qualifies a student for a Diploma of Higher Education if they leave the University before completing the subsequent Part.

Professional/placement year

Students are required to pass the professional placement year/study abroad year in order to progress on the programme which incorporates the professional placement year/study

abroad year. Students who fail the professional placement year/study abroad year transfer to the non-placement year version of the programme.

Part 3

To achieve a threshold performance at Part 3, a student shall normally be required to:

- (i) achieve an average of 40% over 120 credits taken in Part 3 and
- (ii) obtain a mark of at least 40% in individual modules amounting to not less than 80 credits taken in Part 3

In order to progress from Part 3 to Part 4, a student must achieve a threshold performance; and (i) a mark of at least 40% in BI3RP3;

Students who do not meet the requirements to progress to Part 4, but who:

- (i) Meet the requirements described in Section 17 of the Assessment Handbook Bachelor's (see, in particular, section 17.5); and
- (ii) gain a mark of at least 40% in BI3RP3.

Will be eligible for the BSc Microbiology. The classification for this exit award will be based upon an overall weighted average ratio of 1:2 (Part 2: Part 3).

Classification

Bachelors' degrees

The University's honours classification scheme is based on the following:

Mark	Interpretation
70% - 100%	First class
60% - 69%	Upper Second class
50% - 59%	Lower Second class
40% - 49%	Third class
35% - 39%	Below Honours Standard
0% - 34%	Fail

The weighting of the Parts/Years in the calculation of the degree classification is:

Integrated Masters Programmes (MEng, MMath, MChem etc.)

Part 2: 20%

Placement/Study Abroad Year not included in the classification

Part 3: 40%

Part 4: 40%

The classification method is given in detail in Section 18 of the Assessment Handbook (see, in particular, section 18.5).

Students who do not meet the above Part 4 requirements for obtaining the MSci Microbiology degree but who have achieved all previous progression requirements will be eligible for the award of BSc Microbiology. The classification for this exit award will be based upon an overall weighted average ratio of 1:2 (Part 2: Part 3).

For further information about your Programme please refer to the Programme Handbook and the relevant module descriptions, which are available at <http://www.reading.ac.uk/module/>. The Programme Handbook and the relevant module descriptions do not form part of your Terms and Conditions with the University of Reading.

MSci Microbiology for students entering Part 1 in session 2022/23

11 August 2025

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