

BSC (HONS) MICROBIOLOGY

Overview

NFQ Level 8, Major Award

Students enter Second Science Microbiology First Science Area of Study: Biological and Chemical Sciences (CK402) (<https://ucc-ie-public.courseleaf.com/programmes/bscbf/>) provided they have passed First Science.

BSc Ordinary Degree - NFQ Level 7, Major Award

Students who pass Third Year may choose not to proceed to Fourth Year and may opt instead to be conferred with a BSc Ordinary Degree (<https://ucc-ie-public.courseleaf.com/programmes/bscpas/>).

Programme Requirements

For information about modules, module choice, options and credit weightings, please go to Programme Requirements (p. 1).

Programme Requirements

Code	Title	Credits
Year 1		
Students take 60 credits as follows:		
<i>Core Modules</i>		
BC1001	Introduction to Biochemistry and the Biological Basis of Disease	5
BL1002	Cells, Biomolecules, Genetics and Evolution	5
BL1004	Physiology and Structure of Plants and Animals	5
CM1200	Fundamentals of Modern Chemistry Part 1	10
CM1201	Fundamentals of Modern Chemistry Part 2a	10
MA1001	Calculus for Science Part 1	5
MA1002	Calculus for Science Part 2	5
MB1003	Microbiology in Society	5
PY1010	Physics for Biological and Chemical Sciences	10
Year 2		
Students take 60 credits as follows - all listed core modules (55 credits) and 5 credits of elective modules:		
<i>Core Modules</i>		
Biochemistry		
BC2001	Biomolecules	5
BC2002	Principles of Metabolic Pathways	5
Biotechnology		
BT2001	Introduction to Biotechnology	5
Molecular Biology		
ML2001	Introductory Molecular Biology	5
Microbiology		
MB2005	Fundamentals of Microbiology	5
MB2006	Principles of Microbiology	5
Neuroscience		
AN2003	Principles of Human Structure	5
AN2020	Introduction to Neuroscience, the Brain and Behaviour	5
Physiology		
PL2021	Introductory Physiology I	5
PL2022	Introductory Physiology II	5

Statistics		
ST2001	Introduction to Biostatistics	5
<i>Elective Modules</i>		
Students take modules to the value of 5 credits from the following:		5
Semester 1		
Chemistry		
CM2001	Main Group and Transition Element Chemistry	
CM2002	Fundamentals of Organic Chemistry	
CM2003	Energetics and Kinetics	
Plant Science		
PS2001	Introduction to Plant Biotechnology	
Zoology		
ZY2000	Vertebrate Diversity	
Semester 2		
Chemistry		
CM2007	Spectroscopy	
Ecology		
AE2001	Fundamentals of Ecology	
Year 3		
Students take 60 credits as follows:		
<i>Core Modules</i>		
MB3002	Virology	5
MB3003	Food and Industrial Microbiology I	5
MB3005	The role and ecology of microbes in the environment	5
MB3006	Genetic Engineering and Molecular Biotechnology	5
MB3007	Molecular Genetics and Genomics	5
MB3008	Immunology: Host Response to Pathogens.	5
MB3012	Transmission and Epidemiology of Infectious Diseases	5
MB3016	Methods in Microbiology	10
MB3017	Themes in microbe-host interactions	5
MB3021	Medical Microbiology	5
MB3914	Food and Industrial Microbiology II	5
<i>Optional Module</i>		
MB3019	Microbiology Work Placement (5) ¹	
Year 4		
Students take 60 credits as follows - all listed core modules (35 credits) and elective modules to the value of 25 credits:		
<i>Core Modules</i>		
MB4002	Research Project	15
MB4019	Computational Biology	5
MB4025	Eukaryotic Molecular Genetics	5
MB4026	Molecular Biology and Physiology of Bacteria	5
MB4027	Research Frontiers in Microbiology	5
<i>Elective Modules</i>		
Students take modules to the value of 25 credits from the following:		25
MB4010	Food Fermentation and Mycology (5)	
MB4011	Microbial Food Safety (5)	
MB4013	Food Biotechnology (5)	
MB4029	Microbial Diversity and Molecular Ecology (5)	
MB4030	Advanced Medical Microbiology and Immunology (5)	

MB4031 Advanced Virology and Antiviral Immunity (5)

Total Credits 240

¹ Students electing to take this optional module must secure a work placement relevant to the discipline, to be undertaken in June-August (minimum four weeks) subject to the approval of the School of Microbiology. MB3019 Microbiology Work Placement is not included for progression to subsequent year and is not counted toward the final degree award. The result obtained in MB3019 Microbiology Work Placement will be recorded on the student's transcript.

Programme Learning Outcomes

Programme Learning Outcomes for BSc in Microbiology (NFQ Level 8, Major Award)

On successful completion of this programme, students should be able to:

- Discuss the key principles and concepts underpinning the discipline of Microbiology;
- Describe the role of microbes in society and critically analyse future microbiological developments of relevance to society;
- Discuss in detail the physiology and biochemistry of bacteria, and the key elements of genetics in prokaryotes, eukaryotic microbes and viruses;
- Explain the molecular basis of infectious diseases and host immune responses;
- Explain the role and applications of microbes in the food and biotechnology industries, in environmental biotechnology and in ecosystem functioning;
- Critically assess recent and ongoing developments in scientific research and effectively communicate scientific knowledge both orally and in writing;
- Apply fundamental laboratory procedures in Microbiology for applications in research, in medical and/or industrial laboratories;
- Apply the scientific method of investigation and hypothesis testing, including the development of theoretical and practical skills, in the design and execution of experiments;
- Demonstrate appropriate scientific proficiency for entry into further postgraduate education/research or for employment in government, academic or industrial positions.