

# BSC (HONS) BIOTECHNOLOGY

## Overview

Students enter Second Science Biotechnology 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
<b>Year 1</b>		
Students take <b>60</b> 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
<b>Year 2</b>		
Students take <b>60</b> credits as follows - all listed core modules ( <b>55</b> credits) and <b>5</b> 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 <b>5</b> credits from the following:		5
<b>Semester 1</b>		
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	
<b>Semester 2</b>		
Chemistry		
CM2007	Spectroscopy	
Ecology		
AE2001	Fundamentals of Ecology	
<b>Year 3</b>		
Students take <b>60</b> credits as follows:		
<i>Core Modules</i>		
BC3001	Structural and Experimental Biochemistry	5
BC3006	Molecular Biology	5
BC3009	Biophysical and Biochemical Methods	5
BC3010	Bioinformatics	5
BT3001	Literature Project in Biotechnology	5
MB3005	The role and ecology of microbes in the environment	5
MB3006	Genetic Engineering and Molecular Biotechnology	5
MB3008	Immunology: Host Response to Pathogens.	5
MB3914	Food and Industrial Microbiology II	5
MB3021	Medical Microbiology	5
PE2005	Introduction to Biochemical Engineering	5
PT3001	Introduction to Pharmacology	5
<b>Year 4</b>		
Students take <b>60</b> credits as follows:		
<i>Core Modules</i>		
BC4002	Protein Science	5
BC4017	Principles and Applications of Biotechnology	5
BT4001	Work Placement	10
BT4002	Research Project	10
BT4003	Case studies in Biotechnology	5
BT4004	Microbial Biotechnology	5
BT4005	Biopharmaceutical and Medical Devices Microbiology	5
MB4013	Food Biotechnology	5
PE4028	Bioprocess Engineering	10
<b>Total Credits</b>		<b>240</b>

## Examinations

Full details and regulations governing Examinations for each programme will be contained in the *Marks and Standards Book* and for each module in the *Book of Modules*.

## Programme Learning Outcomes

### Programme Learning Outcomes for BSc in Biotechnology (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 Biotechnology;
- Describe the role of modern and traditional biotechnology in society and critically analyse future biotechnological developments of relevance to society;
- Apply the basic principles of process engineering and unit operations to biological processes;
- Explain the role and applications of microbes in the biotechnology industry;
- Discuss the role of recombinant DNA technology and protein science in modern biotechnology;
- Critically assess recent and ongoing developments in biotechnology research and effectively communicate scientific knowledge both orally and in writing;
- Apply fundamental laboratory procedures 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.