

BSc (Hons) Microbiology (Full-Time) – A303/15

1. Objectives

This programme is designed to develop the necessary competence for a career as a microbiologist. The training is broad-based and prepares students for a wide range of employment opportunities in veterinary, clinical and public health fields, biotechnology, environment-related fields, and food and beverage industries. The programme also offers adequate background for specialisation through further studies/research at postgraduate level both locally and overseas.

Upon successful completion of this programme, learners will be able to:

- Demonstrate knowledge and understanding of microorganisms, their role and importance in the food/industrial, environment and health sectors;
- Apply knowledge and skills to control growth of microorganisms in different environments;
- Carry out laboratory procedures to isolate, detect and identify microorganisms present in food, environmental and clinical samples;
- Interpret data obtained from microbiological analyses and take action in consequence;
- Synthesise, evaluate or critically analyse microbiology-related information;
- Demonstrate transferable skills namely written and oral communication, team working, problem solving and IT skills;
- Carry out research in the field of microbiology;
- Embark on training programmes at postgraduate level.

2. General Entry Requirements

In accordance with General Entry Requirements for Admission to the University for Undergraduate Degrees.

3. Programme Requirements

SC: Credit in Mathematics and Chemistry

Preference will be given to candidates also holding an 'O' Level in Biology.

2 GCE 'A' Levels passes in related approved Science subjects.

Preference will be given to candidates also holding an 'A' Level in Biology and Chemistry.

4. Programme Duration

	Normal (Years)	Maximum (Years)
Degree	3	5

5. Credits per Year: Minimum 18 credits, Maximum 48 credits subject to Regulation 4.

6. Minimum Credits Required For Award of Undergraduate Degree: 102

Breakdown as follows:

	Credits from	
	Core Taught Modules	Project
Degree	93	9

The Practical Training Component and the “Scientific Communication Skills and Methods” module must be completed satisfactorily for the award of the degree.

Students may exit with

- (a) a Certificate after having earned 30 credits in core modules.
- (b) a Diploma after having earned 60 credits in core modules.

7. Assessment

Each module will be assessed over 100 marks (i.e. expressed as %) with details as follows (unless otherwise specified):

Assessment will be based on a Written Examination of 2-3 hour duration, carrying a weighting of 70%, and Continuous Assessment carrying 30% of total marks for AGRI modules. Modules from other Faculties/Departments/Centres will carry weighting in the Written Examination and the Continuous Assessment as specified by the concerned Faculties/Departments/Centres. Continuous Assessment will be based on laboratory/field works, and/or assignments, and should include at least 1 class test.

An overall total of 40% for combined continuous assessment and written examination components would be required to pass a module, without minimum thresholds within the individual continuous assessment and written examination.

Modules will carry the weightings of 1, 3 or 5 depending on their status (Introductory, Intermediate or Advanced). Weighting for a particular module is indicated within parentheses in the module code.

Each module will carry credits ranging from 3 to 6 credits and the Project will carry 9 credits.

Students who do not have SC level pass in Biology will be required to follow the “structure and function of multicellular organisms and ecosystems” module in the first semester of the first year of the programme of study. Assessment will be based on a Written Examination carrying a weighting of 70%, and Continuous Assessment carrying 30% of total marks. The module carries no credits. For satisfactory completion of the module, a minimum of 40% should be attained, otherwise student will have to retake the module.

Assessment of the “Scientific Communication Skills and Methods module” will be based on continuous assessment of students throughout the module and/or submission of a portfolio. For satisfactory completion of the module, a minimum of 40% should be attained.

Assessment of practical training placement will be based on the on-site supervisor’s evaluation and the student’s portfolio. For satisfactory completion of the training placement, a minimum of 40% should be attained.

Written examinations for all the modules will be carried out at the end of the academic year.

8. List of Modules

CORE MODULES

Module Code	Module Name	Hr / Yr L+P	Credits
AGRI 1046Y(1)	Chemistry Fundamentals and Biochemistry	60+60	6
AGRI 1056Y(1)	Introductory Statistics	30+30	3
AGRI 1057Y(1)	Basic Microbiology and Techniques	60+60	6
AGRI 1058Y(1)	Cell Biology	60+30	5
AGRI 1059Y(1)	Animal, Human and Plant Physiology	60+60	6
AGRI 1060Y(1)	Genetics	45+30	4
AGRI 1100 (1)	Occupational Safety and Health	15+0	1
AGRI 2066Y(3)	Immunology and Molecular Pathology	60+60	6
AGRI 2081Y(3)	Statistical Methods and Computational Biology	60+60	6
AGRI 2082Y(3)	Microbial Ecology and Evolution	45+30	4
AGRI 2083Y(3)	Microbial Physiology and Biochemistry	60+60	6
AGRI 2084Y(3)	Microorganisms and Diseases	60+60	6
AGRI 2065Y(3)	Molecular Biology and Biotechniques	60+60	6
AGRI 2130 (1)	Scientific Communication Skills and Methods	15 + 0	1
AGRI 3000Y(5)	Project	-	9
AGRI 3129Y(5)	Industrial and Food Microbiology	60+30	5
AGRI 3131Y(5)	Marine, Aquatic, and Environmental Microbiology	60+60	6
AGRI 3080Y(5)	Medical and Veterinary Microbiology	60+30	5
AGRI 3081Y(5)	Microbial Genomics	45+30	4
AGRI 3082Y(5)	Recent Developments in Microbiology	45+0	3
AGRI 3091Y(5)	Bioinformatics and Applications	45+30	4
AGRI 2000	Practical Training can be undertaken either in Year 1 or in Year 2		

Basic module in biology for students who do not have SC level Biology:

AGRI 1000	Structure and Function of Multicellular Organisms and Ecosystems	45+0	-
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Total Number of Credits: 102

9. Programme Plan – BSc (Hons) Microbiology

YEAR 1

Module Code	Module Name	Hr / Yr L+P	Credits
CORE			
AGRI 1046Y(1)	Chemistry Fundamentals and Biochemistry	60+60	6
AGRI 1056Y(1)	Introductory Statistics	30+30	3
AGRI 1057Y(1)	Basic Microbiology and Techniques	60+60	6
AGRI 1058Y(1)	Cell Biology	60+30	5
AGRI 1059Y(1)	Animal, Human and Plant Physiology	60+60	6
AGRI 1060Y(1)	Genetics	45+30	4
AGRI 1100 (1)	Occupational Safety and Health	15 + 0	1
AGRI 1000	Structure and Function of Multicellular Organisms and Ecosystems	45+0	-

AGRI 1000: Only for students who do not have SC level Biology

YEAR 2

Module Code	Module Name	Hr / Yr L+P	Credits
CORE			
AGRI 2066Y(3)	Immunology and Molecular Pathology	60+60	6
AGRI 2081Y(3)	Statistical Methods and Computational Biology	60+60	6
AGRI 2082Y(3)	Microbial Ecology and Evolution	45+30	4
AGRI 2083Y(3)	Microbial Physiology and Biochemistry	60+60	6
AGRI 2084Y(3)	Microorganisms and Diseases	60+60	6
AGRI 2065Y(3)	Molecular Biology and Biotechniques	60+60	6
AGRI 2130 (1)	Scientific Communication Skills and Methods	15 + 0	1
AGRI 2000	Practical Training can be undertaken either in Year 1 or in Year 2		

YEAR 3

Module Code	Module Name	Hr / Yr L+P	Credits
CORE			
AGRI 3000Y(5)	Project	-	9
AGRI 3129Y(5)	Industrial and Food Microbiology	60+30	5
AGRI 3131Y(5)	Marine, Aquatic, and Environmental Microbiology	60+60	6
AGRI 3080Y(5)	Medical and Veterinary Microbiology	60+30	5
AGRI 3081Y(5)	Microbial Genomics	45+30	4
AGRI 3082Y(5)	Recent Developments in Microbiology	45+0	3
AGRI 3091Y(5)	Bioinformatics and Applications	45+30	4

Total Number of Credits: 102