

1. Context and Objectives

Context

The emerging scientific breakthroughs, technological development and innovation in the discipline of life sciences are increasingly considered as vital to enhance the competitiveness of our nation on a global front as well as our prosperity and quality of life. There is an ever growing need to channel human resources in the life sciences and enhance their competencies in this discipline. Microbiology is a particularly important and wide-ranging field of study within the life sciences, covering a range of subjects that are relevant to human and animal health as well as the agricultural, food and environmental sectors.

Objectives of the Programme

This BSc Programme has been tailored for students aspiring for a career in the field of Microbiology and is designed to equip them with the necessary skills and competencies. The programme additionally offers students the opportunity to undertake a 6-month internship at the end of the third year in organizations relevant to their field of study. The internship aims at enhancing practical and hands-on skills for microbiological testing and familiarizing students with the technical know-how that will enable them to contribute to the growing sectors of Biosciences and Biotechnology in Mauritius.

Career Opportunities

The curriculum is broad-based and provides an education and training that is highly competitive and amenable for employment within many sectors. It prepares students for a wide range of opportunities in agricultural, clinical, public health and veterinary settings as well as in biotechnological, environmental and food laboratories. The programme also offers adequate background for specialisation through further studies or research at postgraduate level both locally and overseas.

2. Programme Learning Outcomes

By the end of this programme, graduates will have acquired knowledge, abilities and skills to:

- classify microorganisms as pathogenic, commensal or beneficial
- explain the role and importance of microorganisms in the food, industrial, environmental and health sectors
- propose new applications of microorganisms to solve specific problems
- evaluate, critically analyse and synthesise microbiology-related information
- develop exposés on topical issues in Microbiology
- demonstrate effective written and oral communication, team-working, problem-solving and IT skills
- formulate, test and defend pertinent research questions in Microbiology
- plan survey-based and laboratory-based research activities in an effective manner
- follow laboratory procedures to isolate, detect and identify microorganisms present in food, environmental and clinical samples
- experiment with microorganisms using culturing and non-culturing techniques and interpret data obtained from microbiological analyses and take actions in consequence.

3. Teaching and learning methods

The programme is taught through a series of lectures, tutorials, interactive online activities, laboratory practicals, site-visits and student-led seminars. It also includes self-learning activities (e.g. independent learning, individual reading, use of library resources, preparation and synthesis of notes, revisions for exams) and other learning activities (e.g. group work, preparation of reports, case studies, mini-projects). All of these are meant to allow the development of generic and subject-specific competences and achievement of learning outcomes prescribed for this programme of study.

4. Entry requirements

General Requirements

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

Programme Requirements

Credit in Mathematics and Chemistry at 'O' level and 2 GCE 'A' Levels passes in related approved Science subjects (Mathematics, Chemistry, Physics, Biology, Food Studies, Botany, Zoology, Computer Science or Computing).

5. Programme duration

	Normal (Years)	Maximum (Years)
Degree	3.5	5.5

6. Required Minimum Learner Centered Credit Systems Credits (LCCS credits)

For Degree Award

A student should have successfully completed a total of 6390 learning hours (212 LCCS credits) inclusive of the practical training, as per the programme structure in order to be awarded with the degree.

For each Academic Year

Year of Study	Number of LCCS Credits (Total Learning Hours)
1	60 (1800)
2	72 (2160)
3	62 (1800)
4	18 (570)
Total	212 (6390)

- **Minimum 12 LCCS Credits/ year subject to Section 5.**
- **Maximum 96 LCCS Credits/year subject to Section 5.**

For Exit Award

The student can exit the programme with a Diploma or Certificate, as follows:

- Students may exit with a **Diploma in Microbiology** after having earned **120 LCCS Credits**.
- Students may exit with a **Certificate in Microbiology** after having earned **60 LCCS Credits**.

Break down of learning hours

The total learning hours (i.e. students' workload) for the 3.5 year full time programme is comprised of the following teaching and learning methods:

Teaching and learning methods	Learning Hours
Contact Teaching	890
Self-Study	1760
Other Learning (excluding project)	3200
Project	540
Total	6390

This means that students are expected to work an average of 60 hours per week over a full academic year.

The Academic Year

For each semester of the academic year, lectures, tutorials, class test, and examinations are suggested to be organized and delivered as follows:

Weeks 1 – 5	▪ Lectures/Tutorials/Practicals (Formal contact hours)
Week 6	▪ Class test
Weeks 7 – 11	▪ Lectures/Tutorials/Practicals (Formal contact hours)
Week 12	▪ Feedback on assignments, class test or any remedial assignment
Week 13	▪ Revision week prior to examinations
Week 14	▪ Examinations Start

7. Assessment Methods

The achievement of the modules' learning outcomes will be assessed through a variety of methods (e.g. exams, class tests, reports, field visits). Each module will be assessed over 100 marks (*i.e.* expressed as %) unless otherwise specified.

Assessment will be based on a written examination of 2 - 3 hours' duration, carrying a weighting of 60 %, and continuous assessment carrying 40% of total marks. Continuous assessment will be based on class and laboratory activities/field visits/case studies, and /or other 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 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.

Modules will carry Learner Centred Credits System (LCCS credits) in the range of 2 to 12, except for the dissertation and internship which carry 18 LCCS credits.

The Practical Training of 6 months will be undertaken at the end of Year 3 after the Yearly Examinations and will carry 18 LCCS credits.

A final year dissertation (8,000 – 12,000 words) should be submitted to the Faculty Registry as per the deadline stated in the Regulations 2018-2019 for Undergraduate Programmes.

8. List of Modules

<u>Module Code</u>	<u>Module Name</u>	Contact Teaching (hours)	Self-study (hours)	Other Learning (hours)	Total Learning Hours	<u>LCCS Credits</u>
AGRI 10129Y(1)	Chemistry Fundamentals and Biochemistry	60	120	180	360	12
AGRI 10130Y(1)	Introductory Statistics	30	60	90	180	6
AGRI 10131Y(1)	Basic Microbiology and Techniques	60	120	180	360	12
AGRI 10132Y(1)	Cell Biology	50	100	150	300	10
AGRI 10133Y(1)	Animal, Human and Plant Physiology	40	80	120	240	8
AGRI 10134Y(1)	Genetics	40	80	120	240	8
AGRI 11530(1)	Effective Scientific Communication: Principles and Practice I	20	40	60	120	4
AGRI 20134Y(3)	Immunology and Molecular Pathology	40	80	120	240	8
AGRI 20135Y(3)	Statistical Methods	60	120	180	360	12
AGRI 20136Y(3)	Computational Biology	30	60	90	180	6
AGRI 20137Y(3)	Microbial Ecology and Evolution	40	80	120	240	8
AGRI 20138Y(3)	Microbial Physiology	30	60	90	180	6
AGRI 20139Y(3)	Microbial Biochemistry	30	60	90	180	6
AGRI 20140Y(3)	Microorganisms and Diseases	60	120	180	360	12
AGRI 20141Y(3)	Molecular Biology and Biotechniques	60	120	180	360	12
AGRI 22790(3)	Effective Scientific Communication: Principles and Practice II	10	20	30	60	2
AGRI 30000Y(5)	Project	0	0	540	540	18
AGRI 31119Y(5)	Industrial and Food Microbiology	40	80	120	240	8
AGRI 30120Y(5)	Environmental Microbiology	30	60	90	180	6
AGRI 30121Y(5)	Medical and Veterinary Microbiology	40	80	120	240	8
AGRI 30122Y(5)	Microbial Genomics	40	80	120	240	8
AGRI 30123Y(5)	Recent Developments in Microbiology	30	60	90	180	6
AGRI 30124Y(5)	Bioinformatics and Applications	40	80	120	240	8
AGRI 41001(1)	Professional Development	10	0	20	30	0
AGRI 41000(1)	Internship	0	0	540	540	18
TOTAL		890	1760	3740	6390	212

Total Number of Learner-Centred credits (LCCS credits) = 212

Total Number of Learning Hours = 6390

9. Programme Plan

YEAR 1

<u>Module Code</u>	<u>Module Name</u>	<u>Contact Teaching (hours)</u>	<u>Self-Study (hours)</u>	<u>Other Learning Activities (hours)</u>	<u>Total Learning Hours</u>	<u>LCCS Credits</u>
AGRI 10129Y(1)	Chemistry Fundamentals and Biochemistry	60	120	180	360	12
AGRI 10130Y(1)	Introductory Statistics	30	60	90	180	6
AGRI 10131Y(1)	Basic Microbiology and Techniques	60	120	180	360	12
AGRI 10132Y(1)	Cell Biology	50	100	150	300	10
AGRI 10133Y(1)	Animal, Human and Plant Physiology	40	80	120	240	8
AGRI 10134Y(1)	Genetics	40	80	120	240	8
AGRI 11530(1)	Effective Scientific Communication: Principles and Practice I	20	40	60	120	4
TOTAL		300	600	900	1800	60

YEAR 2

<u>Module Code</u>	<u>Module Name</u>	<u>Contact Teaching (hours)</u>	<u>Self-Study (hours)</u>	<u>Other Learning Activities (hours)</u>	<u>Total Learning Hours</u>	<u>LCCS Credits</u>
AGRI 20134Y(3)	Immunology and Molecular Pathology	40	80	120	240	8
AGRI 20135Y(3)	Statistical Methods	60	120	180	360	12
AGRI 20136Y(3)	Computational Biology	30	60	90	180	6
AGRI 20137Y(3)	Microbial Ecology and Evolution	40	80	120	240	8
AGRI 20138Y(3)	Microbial Physiology	30	60	90	180	6
AGRI 20139Y(3)	Microbial Biochemistry	30	60	90	180	6
AGRI 20140Y(3)	Microorganisms and Diseases	60	120	180	360	12
AGRI 20141Y(3)	Molecular Biology and Biotechniques	60	120	180	360	12
AGRI 22790(3)	Effective Scientific Communication: Principles and Practice II	10	20	30	60	2
TOTAL		360	720	1080	2160	72

YEAR 3

<u>Module Code</u>	<u>Module Name</u>	<u>Contact Teaching (hours)</u>	<u>Self-Study (hours)</u>	<u>Other Learning Activities (hours)</u>	<u>Total Learning Hours</u>	<u>LCCS Credits</u>
AGRI 30000Y(5)	Project	0	0	540	540	18
AGRI 30119Y(5)	Industrial and Food Microbiology	40	80	120	240	8
AGRI 30120Y(5)	Environmental Microbiology	30	60	90	180	6
AGRI 30121Y(5)	Medical and Veterinary Microbiology	40	80	120	240	8
AGRI 30122Y(5)	Microbial Genomics	40	80	120	240	8
AGRI 30123Y(5)	Recent Developments in Microbiology	30	60	90	180	6
AGRI 30124Y(5)	Bioinformatics and Applications	40	80	120	240	8
TOTAL		220	440	1200	1860	62

YEAR 4

<u>Module Code</u>	<u>Module Name</u>	<u>Contact Teaching (hours)</u>	<u>Self-Study (hours)</u>	<u>Other Learning Activities (hours)</u>	<u>Total Learning Hours</u>	<u>LCCS Credits</u>
AGRI 41001(1)	Professional Development	10	0	20	30	0
AGRI 41000(1)	Internship	0	0	540	540	18
TOTAL		10	0	560	570	18

