BSc (Hons) Food Hygiene and Environmental Health [Top-Up Programme (Part/Time)] – A401

Objectives

The BSc (Hons) Food Hygiene and Environmental Health is a trans-disciplinary programme designed to provide graduates with the skills necessary to analyse and evaluate food, environmental and public health problems in scientific, technical and managerial terms. The programme is meant for holders of a Diploma in Sanitary Science/Environmental Science/ Environmental Health or in any relevant field. It is designed to provide academic progression through all the levels and strands, to produce a graduate with a comprehensive education and a wide range of skills applicable to practise in environmental health and allied professions. Increasingly, opportunities exist in private sector companies and consultancies in the areas of food safety, environmental protection and occupational health and safety. It also provides opportunities for postgraduate studies in related fields.

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

- identify potential hazards and their impacts in food, water and the environment
- apply principles of risk analysis with respect to food safety and environmental hazards
- carry out laboratory analyses on physical, chemical and microbiological parameters in food, water and the environment
- explain the principles underlying common methods of food preservation and describe common food processing technologies employed in food manufacture
- apply measures to prevent and control communicable diseases, conduct surveillance and promote health
- conduct environmental/sanitary inspections
- evaluate the key concepts underpinning waste management and environmental pollution
- evaluate the various environmental assessment techniques
- interpret and apply legislation related to food, public health and environment
- integrate strategic management skills into professional practice
- demonstrate transferable skills namely written and oral communication, team working, problem solving and IT skills

2. General Entry Requirements

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

3. Programme Requirements

A Diploma in Sanitary Science /Environmental Science/ Environmental Health or in any relevant field.

4. Programme Duration

	Normal (Years)	**Maximum (Years)**
Degree	2	4

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

6. Minimum Credits Required for the Award of the undergraduate Degree : 44

Breakdown as follows:

	Credits from			
	Core Taught Modules	**Project**	**Electives**	**GEMs**
Degree	35	9	-	-

7. Assessment

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

Assessment of each module 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 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 marks for combined Continuous Assessment and written examination is required to pass a module.

Modules will carry either 3 or 4 credits except the project which carries 9 credits.

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

8. Important Note

The rules as stipulated in this Programme Structure and Outline Syllabus will replace all other rules and regulations.

9. Academic Teaching in Case of an Emergency

To ensure minimal disruption of normal academic teaching in case of an emergency (eg closure of the University for more than 2 weeks), the Moodle e-Learning Platform of VCILT will be used to deliver Teaching and Learning content. Relevant learning resources will be posted on the Platform. Assignments (if any) will be submitted using the online submission box. Arrangements will be made to register students on the Moodle platform at the beginning of the academic year.

10. List of Modules

Code	Module Name	Hr / Yr L+P	Credits
AGRI 3118Y(5)	Food & environmental microbiology	30+30	3
AGRI 3119Y(5)	Processing of Food	30+30	3
AGRI 3120Y(5)	Food Inspection and Analysis	30+30	3
AGRI 3121Y(5)	Food Quality Management	45+0	3
AGRI 3122Y(5)	Statistics and Research Design	30+30	3
AGRI 3123Y(5)	Human Nutrition	45+0	3
AGRI 3124Y(5)	Environmental Health	30+30	3
AGRI 3125Y(5)	Environment and Food Control Systems	45+0	3
AGRI 3126Y(5)	Food Hygiene and Food Safety	45+45	4
AGRI 3127Y(5)	Environmental pollution and waste management	45+30	4
AGRI 3128Y(5)	Environmental assessment strategies	30+30	3
AGRI 3000(5)	Project		9
AGRI 2130	Scientific Communication Skills and Methods	35+0	-

11. Programme Plan – BSc (Hons) Food Hygiene and Environmental Health [Top-Up Programme (P/T)]

YEAR 1

Code	Module Name	Hr / Yr L+P	Credits
AGRI 3118Y(5)	Food & environmental microbiology	30+30	3
AGRI 3119Y(5)	Processing of Food	30+30	3
AGRI 3120Y(5)	Food Inspection and Analysis	30+30	3
AGRI 3121Y(5)	Food Quality Management	45+0	3
AGRI 3122Y(5)	Statistics and Research Design	30+30	3
AGRI 3123Y(5)	Human Nutrition	45+0	3
AGRI 3124Y(5)	Environmental Health	30+30	3

YEAR 2

Code	Module Name	Hr / Yr L+P	Credits
AGRI 3125Y(5)	Environment and Food Control Systems	45+0	3
AGRI 3126Y(5)	Food Hygiene and Food Safety	45+45	4
AGRI 3127Y(5)	Environmental pollution and waste management	45+30	4
AGRI 3128Y(5)	Environmental assessment strategies	30+30	3
AGRI 3000(5)	Project		9
AGRI 2130	Scientific Communication Skills and Methods	35+0	-

Total Number of Credits : 44

AGRI 2130 - Scientific Communication Skills and Methods will take place towards the end of year 1

12. Outline Syllabus

AGRI 3118Y(5) FOOD & ENVIRONMENTAL MICROBIOLOGY

Microbial diversity and physiology. Microorganims in food, water and environment. Growth and survival of microorganisms. Control of microorganisms. Significance of microbial activities: cycling of bioelements, biodegradation, bioremediation, biological control, food spoilage, food and water borne microbial illness, fermented foods.

Laboratory techniques used in the detection, enumeration and identification of microorganisms: basic microbiological safety procedures, aseptic techniques, sample collection techniques, plating, isolation and identification techniques. Interpretation of microbiological data with reference to specifications, standards, spoilage and public health risk. Overview of rapid methods in microbiological examination.

AGRI 3119Y(5) PROCESSING OF FOOD

Introduction to the food sector in Mauritius. Traditional and modern food preservation methods including refrigeration, freezing, thermal processing, dehydration and ionizing radiations. Use of salt, sugar, acid, chemical preservatives and modified atmospheres in food preservation. Packaging of preserved foods. Alternatives to thermal processing. Processing of selected dairy, meat, fish, fruit, vegetable and cereal products.

AGRI 3120Y(5) FOOD INSPECTION AND ANALYSIS

Inspection of food premises and slaughter houses . Examination of the hazards of contamination of food from a variety of sources; microbial, chemical and physical and the risks of microbial multiplication and survival. Food poisoning. Procedures for investigation of food borne outbreaks. Sampling plans and sampling. Analysis of the major constituents of foods, food additives and food contaminants; Sensory analysis of foods. New methods in food analysis. Detection of GMOs. Food adulteration and authentication.

AGRI 3121Y(5) FOOD QUALITY MANAGEMENT

Definitions and relationships between quality and quality management concepts. Eco-labelling. Food standards and specifications. Evolution of quality management approaches. Factors which affect food quality. Quality management principles. Quality management system standards (ISO 9001). Quality management system documentation and auditing. Inherent and assignable causes of process variation. Development and application of variable and attribute Shewart Control Charts in food industries. Acceptance sampling. Operation of Codex sampling plans. Codes of practice and quality standards for food laboratories. Certification and standardization.

AGRI 3122Y(5) STATISTICS AND RESEARCH DESIGN

Review of basic statistics. Qualitative and Quantitative approaches to research. Sampling methods. Questionnaire development, design and administration. Design and analysis of experiments. Data capture and processing using EXCEL and SPSS. Introduction to research methodology. Elements of scientific and technical writing. Introduction to epidemiological surveys.

AGRI 3123Y(5) HUMAN NUTRITION

Macronutrients and micronutrients: Sources, functions, requirements, and effects of deficiency and toxicity of nutrients. Major diet-related diseases. Nutritional requirements. Guidelines on healthy eating. Food Allergy. Food labelling. Energy balance and weight control. Digestion and absorption of food. The effect of processing on nutrients. Sustainable diets.

AGRI 3124Y(5) ENVIRONMENTAL HEALTH

Environmental exposures (including exposure to chemicals, radiation, microbiological agents, etc.) and human health Toxicology: environmental exposures and health. Human exposure to environmental contaminants. Case Study: risk assessment for specific chemicals. Quantifying environmental health impacts Environmental health impact assessment. Ethical Issues in environmental health. Occupational Health. Preventive maintenance strategy. Climate change

AGRI 3125Y(5) ENVIRONMENT AND FOOD CONTROL SYSTEMS

Legal and governmental structure for environmental, occupational and public health control. The nature of regulatory authority, requirements for conducting inspections and investigations, legal tools and enforcement procedures relating to the environment. International environmental laws, principles and treaties. Role of the health inspector in public health.

FAO guidelines for national food control systems. Regulatory and institutional framework for food control in Mauritius. Legislation related to food. Official control. Analytical and epidemiological facilities, standard setting, certification and accreditation bodies, support services to food control system. Role of the health inspector in food control (imported, locally processed and exported foods). International food standards. Sanitary and Phytosanitary measures (SPS) and food safety.

AGRI 3126Y(5) FOOD HYGIENE & FOOD SAFETY

Food safety definitions and concepts. Relationship between food hygiene, safety and quality. Food safety and food security. Factors which affect food safety. Importance of food safety management throughout the food chain. Good Agricultural practices in primary production. Food safety hazards: primary sources, characteristics, adverse health effects, implicated foods and control measures. Comprehensive food safety management systems. Pre-Requisite Programmes (PRPs). Codex general principles of food hygiene. Codex guidelines for mass catering. Relationship between quality, environment and food safety management. Codex guidelines for the Hazard Analysis Critical Control Point (HACCP) system. Application of the seven HACCP principles to selected food processing operations. HACCP experience of food industries. ISO 22000 food safety management system standard. Food risks and consumer perception. Risk analysis. Food safety issues. Safety evaluation of food additives. Food toxicology.

AGRI 3127Y(5) ENVIRONMENTAL POLLUTION AND WASTE MANAGEMENT

Potential sources of pollution and their impacts on environmental and human receptors.

Atmospheric pollution. Sources and impacts of atmospheric pollutants. Techniques for atmospheric pollution monitoring and control.

Noise Pollution. The nature and characteristics of noise. The measurement of noise from various sources including industrial, domestic and traffic. Noise control and monitoring.

Physical and chemical characteristics of water and wastewater. Water pollution. Types of wastewater pollutants.Waste water treatment. Monitoring of water pollution.

Storage, collection, treatment and disposal of all forms of solid wastes.

Sources of hazardous waste. Hazardous waste management.

AGRI 3128Y(5) ENVIRONMENTAL ASSESSMENT STRATEGIES

Sustainable Development - an introduction to differing interpretations and how these influence environmental management. PER (Preliminary Environmental Report). Environmental Impact Assessment and Strategic Environmental Assessment techniques. Environmental Management Tools - exploration of the potential benefits that can be attained by a proactive response to environmental pressures. Environmental Management Systems - introduction to environmental management systems with particular reference to ISO 14001; exploration of the components of this system to deepen knowledge of the function of an environmental management system. Life Cycle Assessment (LCA) and Design for the Environment – Analysing the role of product and process design and LCA as tools for improving company and product environmental performance.

AGRI 3000(5) – PROJECT

This is a very important component of the programme, allowing students to develop high level skills and cognitive abilities. Every student will be allocated a research topic in an the area relevant to the programme and the research work will be carried out under supervision. Students should demonstrate good practice in using skills and knowledge acquired and follow guidelines as laid down.

AGRI 2130 – SCIENTIFIC COMMUNICATION SKILLS AND METHODS

Avenues of communication in science. Scientific and technical writing. Oral and poster presentations. Ethics of scientific publishing. The dissertation guidelines. Planning and managing the

dissertation writing up process – effective literature search and review, introduction, methodology, results, discussion, conclusions, referencing rules and plagiarism.
Concepts of Web 2.0 tools. Uses of Web 2.0 tools: Targeted web searches; use of social media tools (e.g., blogs, wikis) for scientific communication; Sharing and collaborative tools (e.g., social bookmarking) in scientific publications.