UNIVERSITY OF IBADAN
DEPARTMENT OF MICROBIOLOGY
CORE-CURRICULUM MINIMUM ACADEMIC STANDARD (CCMAS)

COURSE OUTLINE
100 LEVEL 70%

Course Code	Course Title	Unit(s)	Status	LH	PH	S
GST 111	Communication In English	2	C	15	45	1
GST 112	Nigerian Peoples and Culture	2	C	30		2
MTH 101	Elementary Mathematics I	2	C	30	-	1
MTH 102	Elementary Mathematics II	2	C	30	-	2
COS 101	Introduction to Computing sciences	3	C	30	45	1
BIO 101	General Biology I	2	C	30	-	1
BIO 107	General Biology Practical I	1	C		45	1
CHM 101	General Chemistry I	2	C	30	-	1
CHM 107	General Chemistry Practical I	1	C		45	1
PHY 101	General Physics I	2	C	30	-	1
PHY 107	General Physics Practical I	1	C		45	1
BIO 102	General Biology II	2	C	30	-	2
BIO 108	General Biology Practical II	1	C		45	2
CHM 102	General Chemistry II	2	C	30	-	2
CHM 108	General Chemistry Practical II	1	C	-	45	2
PHY 102	General Physics II	2	C	30	-	2
PHY 108	General Physics Practical II	1	C	-	45	2
TOTAL		**29**				

100 LEVEL 30%

Course Code	Course Title	Unit(s)	Status	LH	PH	
UI-MCB 121	Microbiology and Sustainable Development	2	R	30	-	1
UI-MCB 123	Laboratory Techniques in Microbial Sciences	2	R	15	45	1
BOT 102	Introductory Botany	2	E	15	45	2
ZOO 102	Animal Diversity	2	E	15	45	2
TOTAL ADDITIONAL UNITS		**8 (4R and 4E)**				

Course Contents and Learning Outcomes

100 LEVEL

UI-MCB 121: Microbiology and Sustainable Development (2 Units R: LH 30)

Learning Objectives

The objective of UI-MCB 121 is to introduce the students to the role that microorganisms/microbiology has to play in sustainable development. At the end of the course, students should be familiar with the concept of sustainable development, the United Nations Sustainable Development Goals (SDG) and what microorganisms/microbiology has to contribute to the attainment of the UN-SDGs.

Course Content

Concepts of Sustainable development, the UN-SDGs, Concept of bio/green/circular-economy, review of the roles of microorganisms in the bio/green/circular economy and sustainable

development with emphasis on the following applications: Microorganisms in sustainable healthcare, Microorganisms and climate change, Microorganisms in the green synthesis of Enzymes, Microorganisms in production of biomaterials for medical, construction and other applications, Microorganisms in nano-synthesis and nanobiotechnology, Microorganisms in waste management (Aerobic and Anaerobic conversion of various organic waste to value added products), Biomining, Microbes in valorisation and repurposing of underutilized and non-conventional wastes, Microorganisms in production of clean alternative energy: Methanogens in clean energy generation, Biofuels, microbial fuel cells, hydrogen generation, Microbial biogas generation, Methanogens and methanogenesis, Microbes in Biorefining of fossil fuels. Introduction to space microbiology, Microbiology in sustainable food production: Microorganisms in enhancement of agricultural productivity (Microbial biofertilizers, Microbial pesticides, Plant growth promoting bacteria), Microbes in sustainable food processing [Food fermentation, enhancement of nutritional quality, production of food additives (flavour, colour etc)], Microorganisms in production of functional foods, Microorganisms in food safety, Microorganisms in treatment of food waste

UI-MCB 122: Laboratory Techniques in Microbial Sciences (2 Units R: LH: 15, PH 45)

Learning Objective

To acquaint the students with the necessary instruments and bench techniques used for microbial analyses.

At the end of the course, students should be able familiar with basic microbiology equipment and their handling in a microbiology laboratory and be generally familiar with standard operations and safety rules in the laboratory

Course Content

Familiarization with basic equipment in microbiology; Definition, principles, parts and uses of equipment in a microbiology laboratory; handling and maintenance of laboratory apparatus and equipment; safety measures/processes in a laboratory. These include equipment/apparatus used in microbiology laboratory [autoclave, incubator, hot air oven, inoculating loop, shaker, vortex mixer, water bath, heating mantle, hot plate with magnetic stirrer, ultraviolet light chamber, inoculating chamber, pH meter, colony counter, microscope, refrigerator, Bunsen burner, spirit lamp, micrometer (stage and ocular) digital balance, thermometer, membrane filter set, description, centrifuge, colorimeter, spectrophotometer, water distiller, pipettes, PCR machine, Gel electrophoresis (both horizontal and vertical), incinerator and others]

BOT 102: Introductory Botany (2 Units E: LH 15; PH 45)

Learning Outcomes

At the end of the course, the students should be able to:

1. identify different classes of plants;
2. describe the vascular plants;
3. locate nonvascular plants;
4. list growth forms of plants;
5. differentiate the cell structure of monocotyledonous and dicotyledonous plants;
6. explain distinguishing features of monocot and dicot;
7. identify types of fruits and seeds;
8. illustrate botanical drawings; and
9. sketch parenchyma, collenchyma, sclerenchyma, xylem and phloem.

Course Contents

General classification of plants. Distinguishing features of Monocotyledons and Dicotyledons. Features of vascular plant, Morphology of non-vascular plants. Duration of life of plants. Plants

life cycles. Growth forms of plants. Cell structure and functions. Morphology of flowering plants, primary vegetative body: stem, leaf and root to show the mature tissues of parenchyma, collenchyma, sclerenchyma, xylem and phloem. Types of fruits and seeds. Botanical drawings and use of microscope.

ZOO 102: Animal Diversity (2 Units E: LH 15; PH 45)

Learning Outcomes

The students, at the end of the course, will be able to:

1. Identify the animal diversity around us;
2. Describe the underlying principles of the classification of animals and the terminology needed in classification;
3. Compare the differences and similarities in the various aspects of classification; and
4. Classify animals up to order using the six levels of classification.

Course Contents

Diversity of animal forms, structures, and functions. Multicellularity and development of embryonic layers; history of animal diversity, basis of categorization of the diversity of animals (symmetry, organization of tissues, body cavity, developmental mode, fate of blastopore); major feature of animal phylogenetics tree; introduction to animal systematic; geographical distribution of animal life and issues in the conservation of biodiversity with emphasis on Nigerian species. General classification of animal kingdom. - binomial nomenclature; international rules of zoological nomenclature (brief account); new trends in systematics: numerical taxonomy (Phenetics), cladistics (phylogenetic systematics), molecular systematics.