



**THE  
FEDERAL UNIVERSITY OF AGRICULTURE  
ABEOKUTA  
BIOTECHNOLOGY CENTRE**

**BIOTECHNOLOGY TRAINING**  
*Programme*  
**2021/2022**



## **BIOTECHNOLOGY TRAINING PROGRAMME**

### **INTRODUCTION**

Biotechnology is the application of Technology to enhance, manipulate and harness the power of biological organisms for practical use. It draws on all aspects of biological sciences and mathematics to provide important solutions to the biomedical, agricultural and environmental problems. With the complete mapping of the human genome, the technology is currently helping medical communities with the latest and greatest advancements in the development of new medicines, care, treatment and diagnosis of illness.

As part of environmental research, it is being used to develop new bio-fuels, adapt to climate change, clean up oil spills and in data mining and storage.

In genetic research, localized genes are used to understand and solve many problems of man, his plants and animals, to unravel the infestation of microbes, in the modification of the food we eat and finding solution to incurable diseases such as cancer, AIDs and COVID-19. It has been successfully used to identify potential suspects at crime scenes, identify crime and catastrophe victims and help to establish paternity and other family relations.

With all these diverse applications, Nigeria can no longer afford to watch this global phenomenon. Biotechnologists are most useful in the fields of agriculture, pharmaceutical, medicine, oil industry and manufacturing. The Federal University of Agriculture, Abeokuta in her desire to make this rapidly involving field available and to further stimulate Nigerians in the use of these technologies is organizing monthly training programmer at her Biotechnology centre.

### **TARGETED AUDIENCE INCLUDES BUT NOT LIMITED TO:**

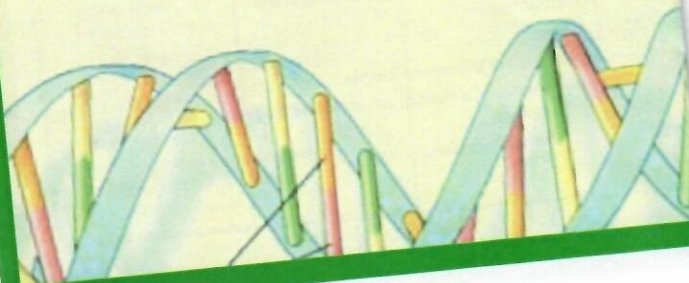
High School, College and University students, Teachers of Biology, Mathematics, Computer Sciences, Medical and Laboratory Scientists, Academic and Industrial Scientists, Health Technologies, Managers and Marketers in Biotechnology Companies, Agriculturists, Security personnel, analytical Chemists and Quality assurance Managers.

## BIOTECHNOLOGY CENTRE TRAINING COURSES FOR 2021/2022

ITEM	COURSE TITLE	COURSE FEE	PERIOD
1	<b>INTRODUCTORY BIOTECHNOLOGY</b> Content: - History and Types of Biotechnology - Cell Structure - Cellular Classification - Cellular Organelles - Cellular Macromolecules (Lipids Carbohydrates) - Proteins, Enzymes - Proteins, Functions and Structure - Flow of Genetic Information (Central Dogma) - DNA Replication - Prokaryotic and Eukaryotic Replication - Application in animals and fishes - Application in medicine and disease diagnosis - Application in plants - Environmental application	N20,000	THEORETICAL 26th - 30th July, 2021
2	<b>(a) MOLECULAR TECHNIQUES IN THE DETECTION OF ANIMAL AND FOOD-BORNE PATHOGENS</b> Content: - Types of Bacteria - Types of Bacterial Cell Wall - DNA Isolation and Quantification - PCR Amplification of Genomic DNA <b>(b) MOLECULAR DIAGNOSIS OF ANIMALS AND PLANT DISEASES</b> Content: - Evolution and plant and microbial genomes - Animals and plants cells - Viruses and plasmids - Pathogenomics	N40,000	PRACTICAL 20th - 27th Sept., 2021
3	<b>(a) BASIC GENOMIC ANALYSIS IN ANIMALS</b> Content: - Basic cell structure - DNA, genes and proteins - DNA extraction, PCR and electrophoresis - Gene probe to detect diseases - DNA Extraction chemistry - DNA isolation and quantification - Primer Designs - Polymerase Chain Reaction (PCR) amplification of target DNA segment - Introduction to different molecular markers/ Marker Assisted Selection - Restriction enzyme digestion and agarose gel electrophoresis I - Understanding microsatellite genotyping - Single Nucleotide Polymorphism - Dry Laboratory (Data Analyses,	N40,000	PRACTICAL 22nd - 26th Nov., 2021

ITEM	COURSE TITLE	COURSE FEE	PERIOD
	Statistical calculation, results interpretation and presentation) <b>(b) BASIC GENOMIC ANALYSIS IN PLANTS AND MICROBES</b> Content: - Basic cell structure - DNA, genes and proteins - DNA extraction, PCR and electroporation - Whole genome assembly - Transcriptome assembly and synteny alignment - Gene sequencing of model organism - Detection of SNPs and structural Variants		
4	<b>MOLECULAR CLONING AND PLANT GENETIC TRANSFORMATION</b> Content: <b>Molecular Cloning</b> - Recombinant DNA technology/genetic engineering - Cloning Vehicle: Plasmids and Bacteriophages - DNA handling techniques for cloning - Recombinant Identification Techniques <b>Plant Transformation:</b> - Media preparation - Selectable and Screenable Markers - Electroporation-mediated plant transformation	N40,000	PRACTICAL 24th - 28th Jan., 2022
5	<b>(a) PRINCIPLES AND APPLICATION OF ATOMIC ABSORPTION SPECTROPHOTOMETER</b> Content: - Basic and advanced concept of Atomic Absorption Spectrophotometer - Components of AAS - Principles and Operation of AAS - Calibration and Data Interpretation - Utilization in Food and Agricultural products - Detection of macro nutrients - Detection of micro nutrients - Detection of heavy metals <b>(b) DETERMINATION OF PROXIMATE AND TOTAL PROTEIN IN FOOD AND AGRICULTURAL PRODUCTS</b> Content: - Introduction to proximate analyses - Determination of moisture, ash, crude fibre, fat and proteins - Digestion of samples	N40,000	PRACTICAL 21st - 25th Feb., 2022

ITEM	COURSE TITLE	COURSE FEE	PERIOD
6	<b>BIOINFOMATICS AND PHYLOGENETICS ANALYSIS</b> Content: - Gene data base (NCBI) - Mapping of DNA and protein sequences - Creating and viewing 3-D models of proteins - Data base recognition - Data management - Data mining and development of algorithms - Similarity searching using BLAST - Multiple Alignment of DNA and protein sequences using Clustal X. and Clustal W - DNA Sequence polymorphism Analysis DnaSP - Phylogenetic evolution of DNA and protein sequences - Sequences alignment using R software - Pre-processing data from genomic experiments using R software - Mining for SNPs and SSRs, HaploSNPer, dbSNP (Introduction to SNPs, Bioinformatics analysis of SNPs and Allelic specific PCR Genotyping SNPs)	N40,000	PRACTICAL 21st - 25th Mar., 2022
7	<b>MICRO PROPAGATION AND COMMERCIAL PRODUCTION OF PLANTLETS</b> Content: - Techniques of micro propagation - Commercial production of plantlets of banana, plantain and pineapples 1. Laboratory safety 2. Media preparation 3. Hormones preparation 4. Micro propagation a. Collection of explants b. Surface sterilization c. Culturing d. Sub-culturing e. Post-flask management	N40,000	PRACTICAL 23rd - 27th May, 2022



## METHOD OF APPLICATION:

All applicants to kindly pay as below:

1. ACCOUNT NAME: CBN Fed. Uni. of Agric., Abk.  
Cava II USD CBN  
ACCOUNT NO. 0101270306850 (DOM. Acct.)  
BANK: Standard Chartered Bank UK Ltd.  
BANK NO: GB38SCBL60910412703068  
SWIFT CODE: SCBLGB2L
2. NAME: CBN FUNAAB E-Collection Acct  
ACCOUNT NO: 0220217161018

Procedure for local payment, with respect to No. 2  
Generate an invoice by logging into remita net and follow the steps below:

- a. select pay TSA/state
- b. select FGN; Federal Government of Nigeria
- c. Who do you want to pay: Fed. Uni. of Agric., Abk.
- d. Name of service/purpose: select income from Biotech. Centre
- e. Narration: being payment for Biotech. training prog.
- f. Provide your phone and e-mails in the spaces provided and submit
- g. Pay using your debit card or take the invoice generated to bank and pay

### REGISTRATION

Application form should be filled online.

Payment one week before commencement of training attracts  
10% Discount.

Full payment to be made by applicants during the last week to  
training or on the day of registration

CANCELLATION WILL ATTRACT 20% ADMINISTRATIVE  
CHARGES OF REFUND, ON OR BEFORE  
COMMENCEMENT OF TRAINING.

FOREIGNERS ON COURSE 1:\$150.00 OTHER COURSES:  
\$300.00

Website: [www.unaab.edu.ng/centres/biotechnology.html](http://www.unaab.edu.ng/centres/biotechnology.html)

**\*\*Participants are to take care of their accommodation**

#### CONTACT:

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**PROGRAMME OFFICER**

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