



ICGEB International Centre for Genetic
Engineering and Biotechnology



ICGEB Course “Laboratory Techniques in Molecular Biology and Enzyme Engineering for Sustainable Bioenergy: *from Theory to Bench*”

Monday, 26 September - Friday, 30 September, 2022
**@ Enzyme and Environmental Biotechnology Laboratory, Department of
Biochemistry, School of Life Sciences,
Federal University of Technology Akure (FUTA), Nigeria**

Keynote Speaker

Professor Abdullahi Mustapha
Director General/CEO, National Biotechnology Development Agency
(NABDA)

Chief Host

Professor Adenike Oladiji, FAS
Vice Chancellor, FUTA

Organizer

Professor Folasade Olajuyigbe
PI and Head, E-Biotech Lab., FUTA

Co-Organizer

Professor Ayodele Kolawole
Head, Biomolecular Structure & Dynamics Lab., FUTA

Co-Organizer

Dr. Olusola Ogunyewo
Postdoctoral Fellow, University of California, Berkeley, USA

PROGRAMME OF ACTIVITIES

DAY ONE (26/09/2022) @ T. I. Francis Auditorium, FUTA		
Time	Activity	Facilitators
08:00 - 10:00	Arrival and Registration of Participants	Registration Officers
	Opening Session	
10:00 - 10:05	National Anthem & FUTA Anthem	All Participants
10:05 - 10:10	Opening Prayer	
10:10 - 10:20	Welcome Address - Course Organizer	Prof. Folasade Olajuyigbe
10:20 - 10:30	Vice Chancellor's Address and Declaring Course Open	Prof. Adenike Oladiji, FAS
10:30 - 10:35	Programme Overview	Prof. Folasade Olajuyigbe
	Goodwill Messages:	
10:35 - 10:40	Dean, School of Life Sciences	Prof. Michael Ashamo
10:40 - 10:45	Head, Department of Biochemistry	Prof. David Sanni
10:45 - 10:55	FUTA Pioneer in Enzymology (Enzymology and Enzyme Biotechnology: <i>An Inseparable Union</i>)	Prof. Joshua Ajele
10:55 - 11:25	Keynote Address Director General/CEO, National Biotechnology Development Agency (NABDA), and ICGEB appointed Governor and Liaison Officer for Nigeria	Prof. Abdullahi Mustapha
	Awareness Talks	
11:25 - 11:30	1: ICGEB	Dr. Shams Yazdani
11:30 - 11:35	2. NABDA	Dr. Shakirat Ajenifujah-Solebo
11:35 - 11:50	Remarks by Co-Sponsors Company of Biologists, UK Inqaba Biotech, West Africa, Ibadan United States Consulate General, Lagos Merck Group, Germany SolarWorld, Ibadan, Nigeria	
11:50 - 12:00	Award Presentation	
12:00 - 12:10	Group Photographs	Members of the High Table and Participants
12:10 - 12:15	FUTA Anthem & National Anthem	
Session 1: Engineering Platforms for Enzyme Production and Biomass Conversion		
12:20 - 12:50	Lecture 1 Fungal genetic engineering to produce enzymes for 2G Biofuels	Dr. Shams Yazdani
12:50 - 1:20	Lecture 2 Cell-free Synthetic Biology as a Platform for Rapid Enzyme Engineering	Dr. Jenny Molloy
1:30 - 2:20	Lunch	
Technical Session @ Enzyme and Environmental Biotechnology Lab, Department of Biochemistry, FUTA		
2:30 - 3:00	Laboratory Session I Laboratory Safety and Health	Mr. Festus Igbe

3:00 - 5:00	Standard Enzyme Assays in Biofuel Production	Lab Mentors
5:00	Welcome Cocktail @ Multipurpose Hall	
DAY TWO (27/09/2022) @ The University Library, FUTA		
SESSION 2: Bioinformatics Tools for DNA/Protein Sequence Analysis and Recombinant Enzyme Production		
9:00 - 9:30	Lecture 1 Bioinformatics tools for DNA/protein sequence analysis; Primer Design; Polymerase Chain Reaction (PCR)	Dr. Olusola Ogunyewo
9:30 - 10:00	Lecture 2 Recombinant Production of Enzymes: <i>Cloning to High Cell Density Cultivation</i>	Dr. Alfred Fernandez-Castane
10:00 - 10:30	Lecture 3 Troubleshooting in Polymerase Chain Reaction and Gene Cloning	Dr. Olusola Ogunyewo
10:30 - 11:00	Tea / Coffee Break / Poster Session	
Technical Session @ Enzyme and Environmental Biotechnology Lab, Biochemistry Department, FUTA		
11:00 - 1:00	Laboratory Session II DNA Extraction and Quality Assessment Agarose Gel Electrophoresis	Lab mentors
1.00 - 2:00	Lunch	
2.00 - 5:00	Laboratory Session III Polymerase Chain Reaction	Lab mentors
6:00	Dinner	
DAY THREE (28/09/2022) @ The University Library, FUTA		
SESSION 3: Genome Editing and Trends in Bioenergy		
9:00 - 9:30	Lecture 1 Genome Editing Techniques for Improved Biofuel Production	Dr. Olusola Ogunyewo
9:30 - 10:00	Lecture 2 Application of Systems and Synthetic Biology to Produce Advanced Biofuels	Dr. Shams Yazdani
10:00 - 10:30	Lecture 3 Genetically Modified Organisms (GMOs) for Bioenergy: <i>Past, Present and Future</i>	Dr. Shakirat Ajenifujah-Solebo
10:30 - 10:40	Group Photographs	
10:40 - 11:00	Tea / Coffee Break / Poster Session	
Technical Session @ Enzyme and Environmental Biotechnology Lab, Department of Biochemistry, FUTA		
11:00 - 1:00	Laboratory Session IV Genome Editing for Strain Development and Improved Enzyme Production in <i>Pichia pastoris</i>	Lab mentors
1:00 - 2:00	Lunch	
2.00 - 5:00	Laboratory Session V Genome Editing for Strain Development and Improved Enzyme Production in <i>Pichia pastoris</i> (continued)	Lab mentors

6:00	Dinner	
DAY FOUR (29/09/2022) @ The University Library, FUTA		
SESSION 4: Enzyme yield, and Enzyme Immobilization		
09:00 - 9:30	Lecture 1 SDS- Polyacrylamide Gel Electrophoresis of Proteins: <i>The Nitty-Gritty and Troubleshooting Tips</i>	Prof. Ayodele Kolawole
9:30 - 10:00	Lecture 2 Enzyme Immobilization in Biocatalysis: Story of the Immobilized Laccase from <i>Cyberlindnera fabianii</i>	Prof. Folasade Olajuyigbe
10:00 - 10:30	Lecture 3 Bio-inspired Approaches to Low-Cost Enzyme Expression and Immobilization	Dr. Jenny Molloy
10:30 - 11:00	Tea / Coffee Break / Poster Session	
Technical Session @ Enzyme and Environmental Biotechnology Lab, Biochemistry Department, FUTA		
11:00 - 1:00	Laboratory Session VI SDS-PAGE Coomassie Brilliant Blue Staining	Lab mentors
1:00 - 2:00	Lunch	
2:00 - 5:00	Laboratory Session VII Enzyme Immobilization by Entrapment Method	Lab mentors
6:00	Dinner	
DAY FIVE (30/09/2022) @ T. I. Francis Auditorium, FUTA		
SESSION 5: Career Development Seminars & Closing Ceremony		
09:00 - 9:30	Seminar 1 Research and Researcher Assessment: A Continuous Challenge	Prof. Menico Rizzi
9:30 - 10:00	Seminar 2 Strategies for Writing Award Winning Scholarship, Fellowship, and Grant Applications	Prof. Folasade Olajuyigbe
	Tea / Coffee Break	
10:00 - 12:00	Closing Ceremony National Anthem & FUTA Anthem Opening Prayer Award of Prizes Presentation of Certificates Participants' Responses Course Organiser's Address Vice Chancellor's Address and Closing of Course Group Photographs	
12:00	Lunch and Departure	