



مولانا آزاد نیشنل اردو یونیورسٹی

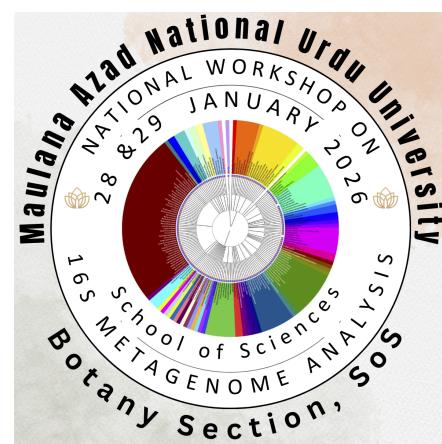
مولانا آزاد نیشنل اردو یونیورسٹی

MAULANA AZAD NATIONAL URDU UNIVERSITY

National Workshop

"16s Metagenomic Analysis"

28 & 29 JAN 2026

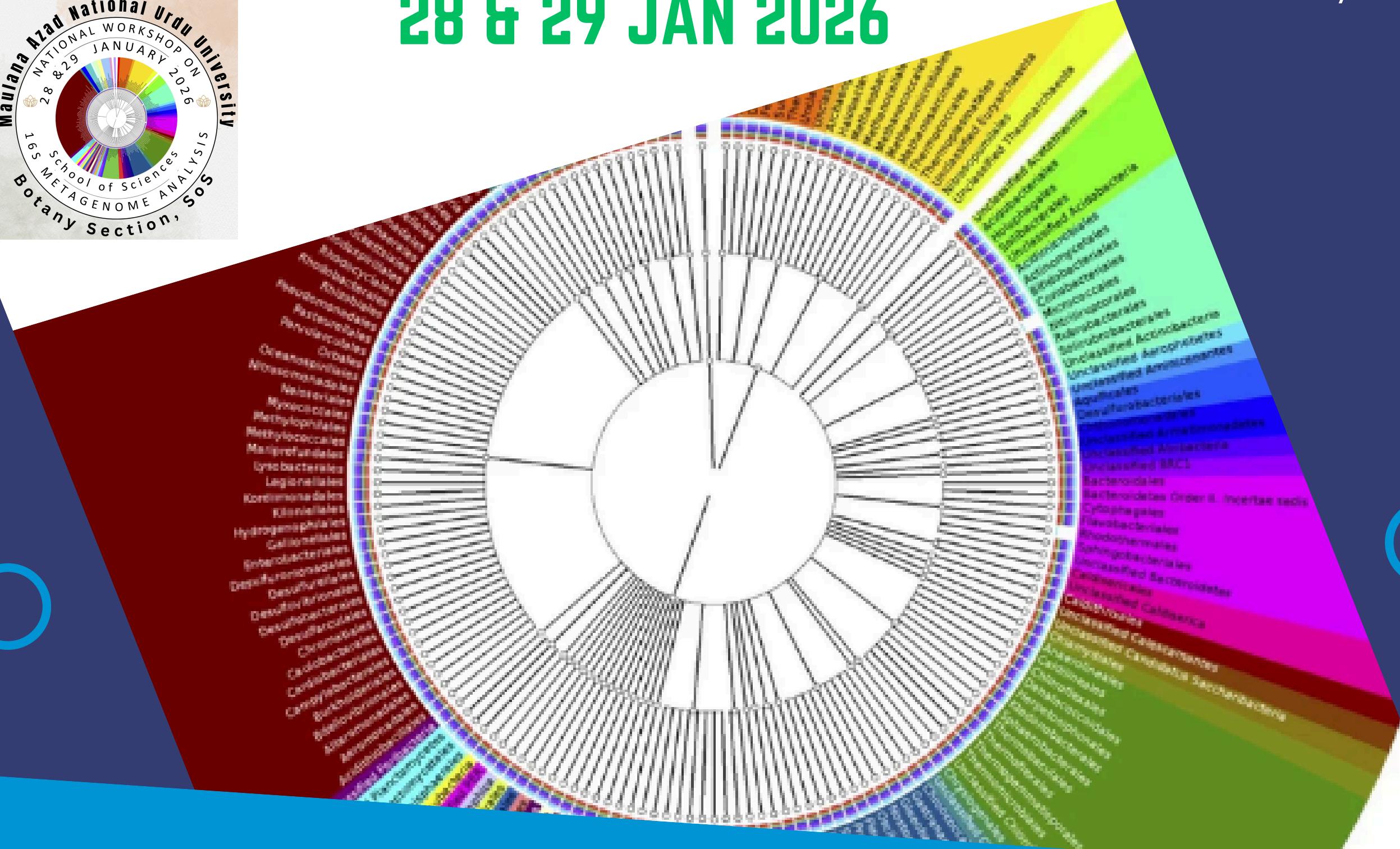


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Honourable Vice Chancellor,
MANUU, Hyderabad



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MANUU

Director



PROF. S. MAQBOOL AHMED

HEAD, BOTANY SECTION
MANUU

ORGANIZED BY THE BOTANY SECTION, SCHOOL OF SCIENCES,
MANUU, HYDERABAD

About the University

MANUU, A Central University, Accredited with an A+ Grade by NAAC. It was established in 1998 by a parliamentary act with the goals of promoting & developing the Urdu language, providing education & training in vocational & technical subjects in Urdu, expanding access to higher education & training programs in Urdu through both on-campus & distance, & emphasizing women's education.

The MANUU spans across 11 states, reaching learners through its 8 schools & 20 departments, offering a vast array of 120 programs, all the way to Ph.D. The university's headquarters spread across a 200-acre, lush-green campus situated in the heart of Hyderabad's Gachibowli. MANUU fosters an environment that supports academic and research excellence through its cutting-edge educational facilities. MANUU is ranked in the 151-200 band in the Overall category of NIRF 2025.

About the School of Sciences

The university established the School of Sciences in 2006 to create a unique educational program of study distinct from human-centred subjects (arts and social sciences), considering the importance of science education in developing nations in various areas. The School currently has two Departments: Mathematics & Vocational Studies (Allied Health Sciences) & four sections: Physics, Chemistry, Botany, & Zoology. It offers undergraduate B.Sc. programs in Physical Sciences & Life Sciences, aligned with the NEP 2020 & Vocational Course B.Voc. in MIT, MLT, ETT & PG Ph.D. Programs. Additionally, students can pursue postgraduate M.Sc. & doctoral Ph.D. programs. The School has MoU with Medicover & Omega Hospital for serving Allied Health Programs.

About the Botany Section

The Botany Section, founded in 2014, has continually strived to offer a strong academic and research-oriented atmosphere. It began its journey with the launch of its undergraduate program in the same year and later introduced a Ph.D. program in the academic year 2019–20.

The department is well-equipped with cutting-edge laboratories and technology, enabling a teaching approach that emphasizes interactive and practical skills. It regularly conducts seminars, workshops, and extension lectures to promote academic engagement and collaboration among students and faculty members from within and outside the university.

In association with the Dean of International Students, the department frequently organizes guest lectures and discussions on current topics in Botany, inviting renowned experts from both national and international institutions. These initiatives help broaden students' academic outlook and global exposure. The faculty members of this section have received grants from various funding agencies, including the UGC & ICSSR.

About the Workshop:

The two-day intensive workshop on '16S Metagenome Analysis' aims to equip you with the essential bioinformatics skills and practical knowledge required to process, analyze, and interpret large-scale microbial community sequencing data. Metagenomics is the study of genetic material recovered directly from environmental samples - it has revolutionized our understanding of microbial life, ecology, and its connection to human health. However, turning millions of raw sequence reads into meaningful biological insights requires specialized computational expertise.

Organizing Committee:

Prof. S. Maqbool Ahmed (Head & Director - 16S MA WS)
Dr. Maruthi K R (Convener - 16S MA WS)
Dr. Ira Khan
Dr. Merajul Islam Robab (Co-convener - 16S MA WS)
Dr. Mohammad Faizan
Dr. Mohammad Danish (Co-convener - 16S MA WS)
Dr. Bibi Hafsa Azra
Dr. Ghafoor Unnisa

Research Scholars :

Ms. Aurosha Fayaz
Ms. Nikhat Begum
Mr. Ahmed Muneeb
Ms. Atiya Begum
Mr. Muqadas Hussain Kalas
Ms. Ayesha Begum
Ms. Neha Begum
Mr. Mohd. Zaid
Mr. Sahil Amir



Detailed Two-Day Workshop Plan & Schedule

Day 1: Data Preparation and Pipeline Execution. (28.01.2026)

Focus: Command-Line Basics, Quality Control, and Pipeline Initiation.

1A: Setup & Data Acquisition 10.30 - 11.45 AM	Introduction to the analysis environment and public data	Setting up the VM/Cloud environment. Hands-on download of target 16S FASTQ data using the SRA Toolkit. Tools: Unix/Linux, SRA Toolkit
1B: Quality Control and Trimming 12.00 - 1.00 PM	Assessing and cleaning raw sequencing reads.	Assessing and cleaning raw sequencing reads. FastQC, Tools: Trimmomatic/fastp
1C: SHAMAN Pipeline Execution 2.00 - 3.30 PM	Executing a taxonomic analysis workflow.	Introduction to the SHAMAN platform. Uploading cleaned FASTQ files and running the full taxonomic assignment pipeline. Tools: SHAMAN Platform, Taxonomic Databases
1D: Output Review & Data Transfer 3.45 - 5.30 PM	Understanding the core data structure.	Downloading and reviewing key output files: Feature Table (ASV/OTU counts) and Sample Metadata file. Tools: Feature Table (TSV), Metadata

Day 2: Downstream Analysis and Interpretation (29.01.2026)

Focus: Statistical Analysis, Visualization, and Interpretation.

2A: Microbiome Analyst Setup 10.00 - 11.30 AM	Introduction to the downstream analysis environment	Uploading the processed Feature Table and Metadata file into MicrobiomeAnalyst. Initial data filtering and basic relative abundance visualization. Tools: Microbiome Analyst, Relative Abundance Plots
2B: Community Structure Analysis 11.45 - 1.15 PM	Measuring diversity within and between communities.	Calculation and interpretation of Alpha Diversity (Shannon, Chao1). Visualization and significance testing for Beta Diversity (PCoA/NMDS). Tools: Alpha & Beta Diversity Metrics, PCoA
2C: Differential Abundance Analysis 2.00 - 3.15 PM	Identifying taxa that are statistically different between groups.	Performing statistical tests (e.g., based on DESeq2 or LEfSe principles) to find significantly enriched taxa. Generating visualization plots (e.g., Cladograms). Tools: LEfSe/DESeq2 Principles, Cladograms
2D: Discussion & Advanced Tools 3.30 - 5.00 PM	Review of the Complete workflow and next steps.	Interpreting the final results. Introduction to advanced packages (e.g., phyloseq in R) & resources for generating publication-ready figures. Q&A. Tools: R/phyloseq, Scientific Interpretation
Future Directions & Discussion 5.00 - 5.15 PM	Discussion	Overview of Metagenome-Assembled Genomes (MAGs) & Machine Learning applications. How to interpret & report results.

REGISTRATION DETAILS

Registration Fee:

- a). Students (UG/PG): Rs. 500.00
- b). Scholars/Faculty : Rs. 1,000.00



Name of the Bank: SBI

Bank Account details

Bank Account Number: 30858125363; IFS Code : SBIN0005555;
Branch: AMU Aligarh; Name: Mohammed Danish

Registration Link: <https://forms.gle/mZzg3swBCcjhLUGdA>

Last Date for Registration: 20th January 2026

Max. number of participants: 40 only

NOTE:

A laptop is mandatory for attending the Workshop.

Resource Persons



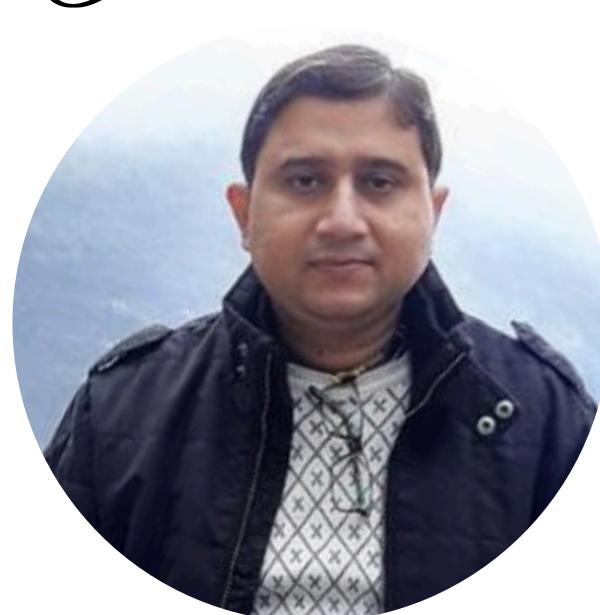
MADAVAN VASUDEVAN & TEAM
FOUNDER & CEO
THEOMICS I.P.L.

Convener



DR. MARUTHI K R
ASSOCIATE PROFESSOR

Co-convener



DR. MERAJUL ISLAM ROBAB
ASSISTANT PROFESSOR



THEOMICS
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Co-convener



DR. MOHD DANISH
ASSISTANT PROFESSOR

ORGANIZED BY THE BOTANY SECTION, SOS, MANUU, HYDERABAD

ADMISSION IN MANUU OPEN FOR THE ACADEMIC YEAR 2026-27

M.Sc. Bioinformatics (20 Seats);

Should you require further clarification
regarding admission to these courses, please contact

Dr. Mohd Faizan (7417659443);

M.Sc. Botany (20 Seats)

Dr. Mohd Danish (8604900504).

Visit our website for more information: www.manuu.edu.in