



مولانا آزاد نیشنل اردو یونیورسٹی

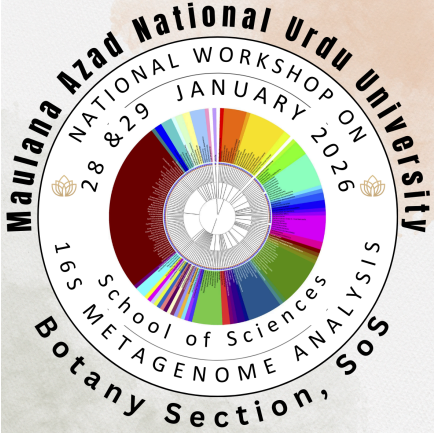
मौलाना आज़ाद नेशनल उर्दू युनिवर्सिटी

MAULANA AZAD NATIONAL URDU UNIVERSITY

National Workshop

"16s Metagenomic Analysis"

28 & 29 JAN 2026

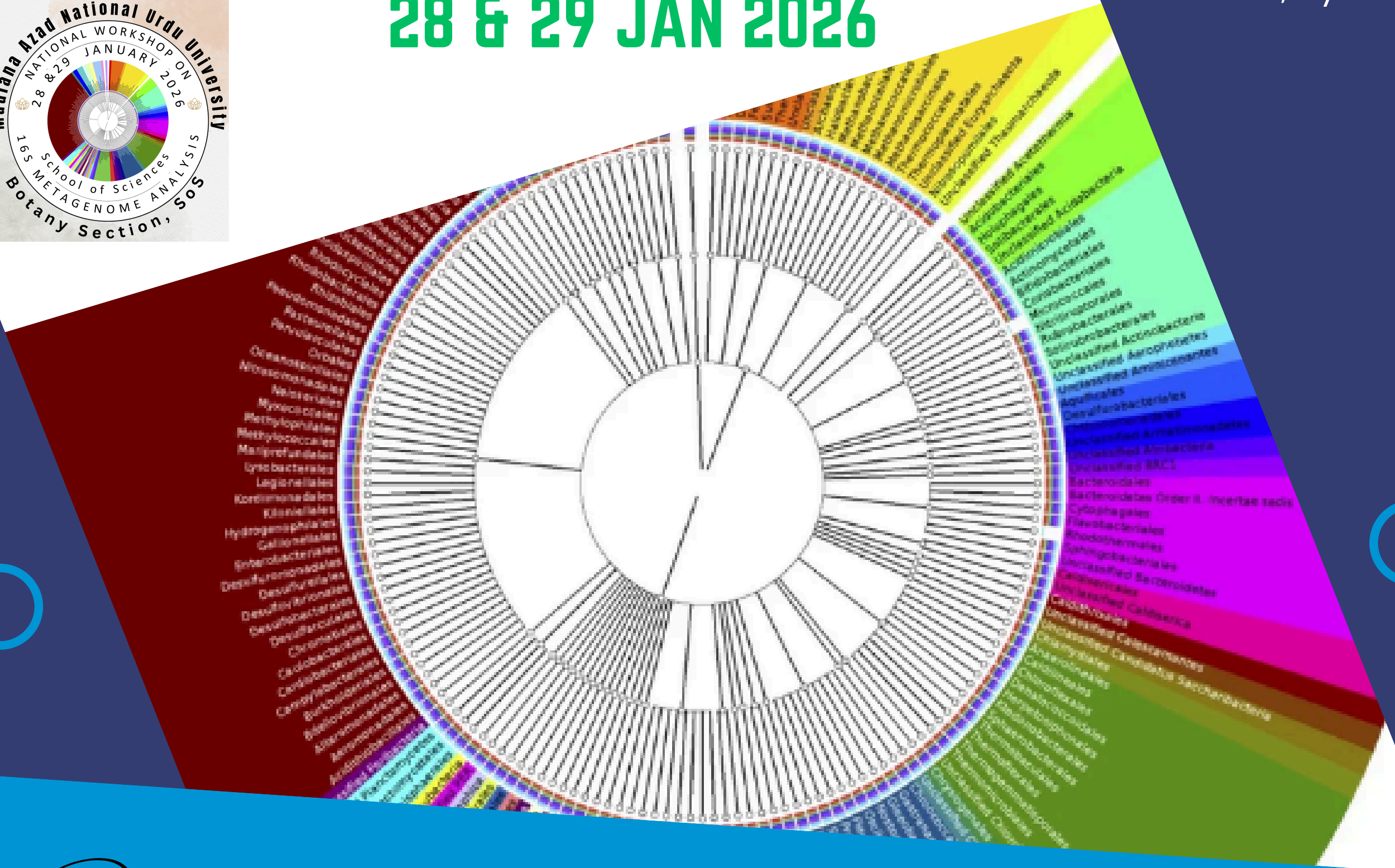


CHIEF PATRON



PROF. SYED AINUL HASAN

Padma Shri Awardee &  
Honourable Vice Chancellor,  
MANUU, Hyderabad



Patron



PROF. SK. ISHTIAQUE  
AHMED

REGISTRAR, MANUU

Chairman



PROF. H. ALEEM BASHA

DEAN, SOS  
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 having MoU with Medicovert & 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:

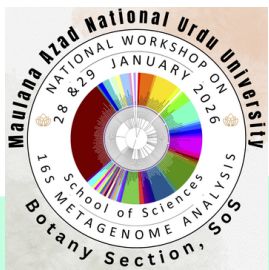
The two-day intensive workshop on ‘16S Metagenome Analysis’ aims to equip you with the essential bioinformatics skills and practical knowledge required to process, analyze, and interpret large-scale microbial community sequencing data. Metagenomics is the study of genetic material recovered directly 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. Mohdammad 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.**

<b>1A: Setup &amp; Data Acquisition</b> 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
<b>1B: Quality Control and Trimming</b> 12.00 - 1.00 PM	Assessing and cleaning raw sequencing reads.	Assessing and cleaning raw sequencing reads. FastQC, Tools: Trimmomatic/fastp
<b>1C: SHAMAN Pipeline Execution</b> 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
<b>1D: Output Review &amp; Data Transfer</b> 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.**

<b>2A: Microbiome Analyst Setup</b> 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
<b>2B: Community Structure Analysis</b> 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
<b>2C: Differential Abundance Analysis</b> 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
<b>2D: Discussion &amp; Advanced Tools</b> 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
<b>Future Directions &amp; Discussion</b> 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

### Bank Account details

Bank Account Number: 30858125363; IFS Code : SBIN0005555;

Name of the Bank: SBI

Branch: AMU Aligarh; Name: Mohammed Danish

Registration Link: <https://forms.gle/mZzg3swBCcjgLUGdA>

Last Date for Registration: 20<sup>th</sup> 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

### 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);**

**M.Sc. Botany (20 Seats)**

Should you require further clarification

regarding admission to these courses, please contact

Dr. Mohd Faizan (7417659443);

Dr. Mohd Danish (8604900504).

Visit our website for more information: [www.manuu.edu.in](http://www.manuu.edu.in)