

CIRCULAR

DEPARTMENT OF MICROBIOLOGY

Value Added Program on “Bioinformatics”

This is to inform all BSc Microbiology- Honours students of M. S. Ramaiah College of Arts, Science and Commerce-Autonomous that the Department of Microbiology is organizing a two days Value Added Program on “Bioinformatics” on 6th & 10th February 2025.

This activity aims to equip students with practical and theoretical knowledge that can enhance their expertise in the rapidly evolving field of bioinformatics which will help them to understand the Fundamentals of Bioinformatics, Biological Data Analysis and develop their computational skills and experience with databases.

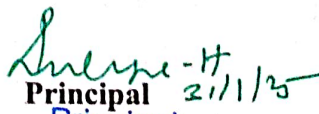
The resource person for the program will be Dr. Vemula Vani.

Date: 6th & 10th February 2025

Time: 09:30am onwards

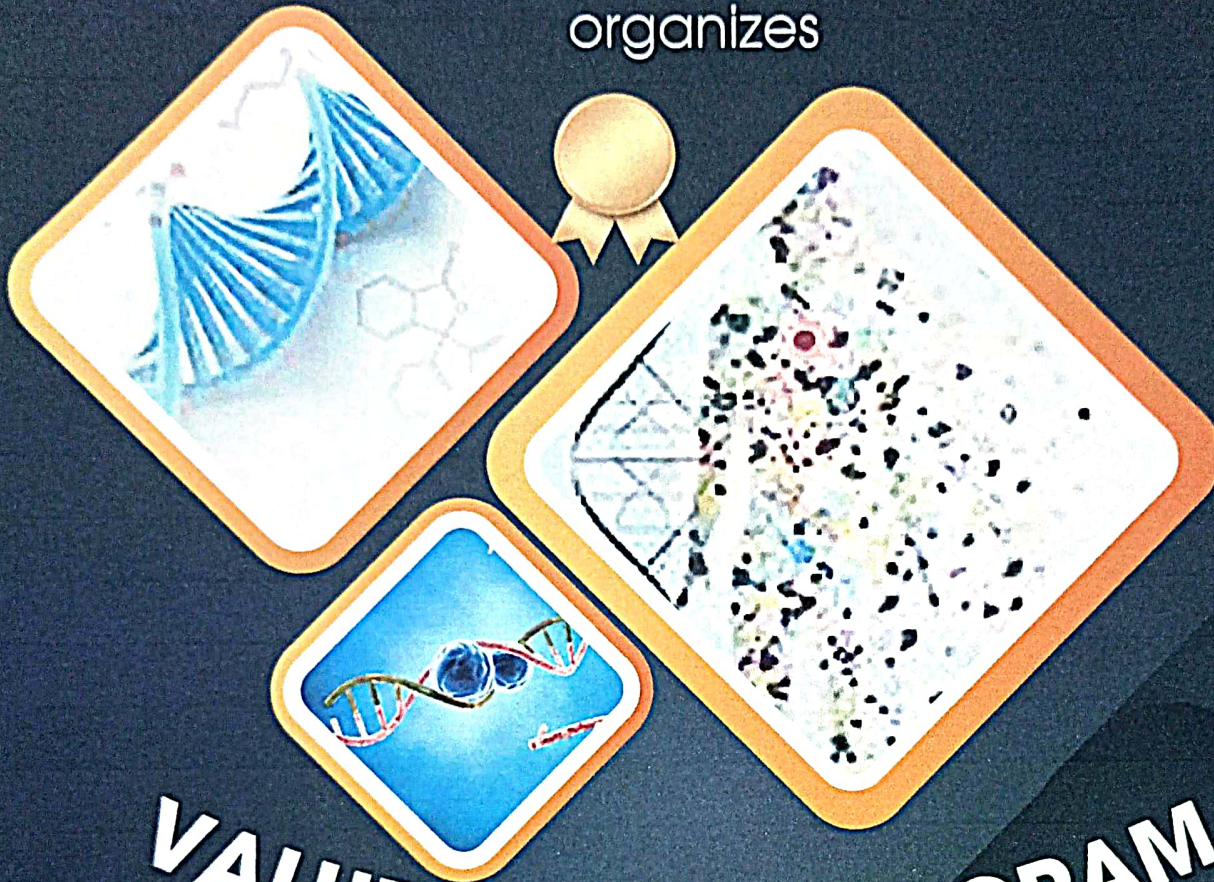
Venue: 402 classroom & Computer lab


HOD


Principal
Principal
M.S.Ramaiah College of Arts, Science &
Commerce-Autonomous
MSRIT POST, MSR Nagar
Bengaluru - 560 054

Department of Microbiology

organizes



VALUE ADDED PROGRAM BIOINFORMATICS

This activity aims to equip students with practical and theoretical knowledge that can enhance their expertise in the rapidly evolving field of bioinformatics

Resource Person: Dr. Vemula Vani

Date: 6th to 10th February 2025
9:30 am onwards

Coordinator

 **Mrs. Soumya Satyanand Shanbhag**
9740819951

Objectives:

- Understand the Fundamentals of Bioinformatics
- Biological Data Analysis
- Develop computational skills
- Knowledge of database

Principal: Dr. Pushpa H

Department of Microbiology organizes **VALUE ADDED PROGRAM** **ON** **BIOINFORMATICS**

Date: 6th-10th February 2025
9:30 am onwards
Program Schedule

Sl No	Course Content	Day
1	Introduction to the Workshop on Bioinformatics	6 th Feb 25
2	Introduction and Applications of Bioinformatics	6 th Feb 25
3	Introduction to Bioinformatics tools	6 th Feb 25
Module 2- Advanced Concepts in Bioinformatics		
4	Nucleotide and Protein sequence Databases and Retrieval of sequences	10 th Feb 25
5	Sequence alignment methods	10 th Feb 25
6	Sequence similarity search	10 th Feb 25
7	PDB and retrieval of protein structures	10 th Feb 25
8	Rasmol analysis of protein 3D structures	10 th Feb 25
Module 3- Assessment & Feedback		
9	Discussion and Assessment	11 th Feb 25
10	Feedback	11 th Feb 25

Registration: Free

**Venue: Classroom- 4th floor
Computer Lab**

DEPARTMENT OF MICROBIOLOGY

REPORT ON

VALUE ADDED PROGRAM ON “BIOINFORMATICS”

Title: Value Added Program on “Bioinformatics”

Date: 6th to 11th February 2025

Venue: 402 class room and computer lab

Participants: IV-Year BSc students

No. of Participants: 18

Objective:

- ❖ To understand fundamentals of Bioinformatics.
- ❖ To understand the analysis of biological data.
- ❖ To develop computational skills
- ❖ To understand the knowledge of database.

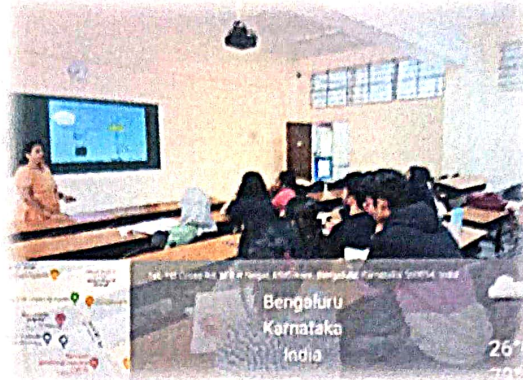
UG department of Microbiology, MSRCASC-Autonomous organized 3 days Value Added Program on “Bioinformatics” from 6th to 11th February 2025. The value-added program on “Bioinformatics” serves as an introduction to bioinformatics, providing an overview of its significance in modern biological research. Participants are familiarized with the scope, objectives, and learning outcomes of the workshop. Hence this program equip students with practical and theoretical knowledge that can enhance their expertise in

rapidly evolving field of bioinformatics.

First session covered the fundamental principles of bioinformatics and its various applications in fields such as genomics, proteomics, drug discovery, and personalized medicine. It highlighted the



interdisciplinary nature of bioinformatics, which integrates biology, computer science, and mathematics. Participants were introduced to essential bioinformatics tools used for data analysis, sequence alignment, structural predictions, and more. The session emphasized the role of computational tools in biological data interpretation.



Module 2: Applications of Bioinformatics

Nucleotide and Protein Sequence Databases and Retrieval of Sequences

This session provided an overview of publicly available databases such as GenBank, EMBL, and UniProt. It explained how researchers can retrieve nucleotide and protein sequences for comparative analysis and research.



Sequence Alignment Methods

The module discussed various sequence alignment techniques, including global and local alignment. The importance of multiple sequence alignment in evolutionary biology and functional annotation was emphasized.

Sequence Similarity Search

This section introduced algorithms such as BLAST (Basic Local Alignment Search Tool) and FASTA for identifying sequence homology. The significance of similarity searches in identifying gene functions and evolutionary relationships was also discussed and explained practically.



PDB and Retrieval of Protein Structures

Participants learnt about the Protein Data Bank (PDB), a crucial resource for 3D protein structure information. The session covered the methods for retrieving and analysing protein structures from PDB.

Rasmol Analysis of Protein 3D Structures

This session focused on using RasMol, a molecular visualization tool, for analyzing protein 3D structures. It demonstrated how structural insights can aid in understanding protein function and interactions.



Module 3: Assessment & Feedback

Discussion and Assessment

This module includes interactive discussions and assessments to evaluate participants' understanding of the concepts and tools covered in the value-added program. It involved MCQ questions and practical exercises. At the end of sessions participants provided feedback on the value-added program, including the effectiveness of the modules, clarity of instruction, and practical applicability of the learned skills. This feedback is used for improving future training sessions.

Conclusion

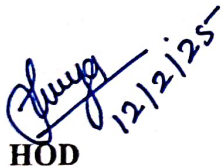
This value-added program provided a comprehensive foundation in bioinformatics, equipping participants with essential knowledge and skills for biological data analysis. By integrating theoretical concepts with hands-on experience, it prepared learners for advanced research and practical applications in bioinformatics.

Outcome:

- Understanding the fundamentals of bioinformatics, including genomics, proteomics, and structural biology.
- Hands-on experience with bioinformatics tools and databases like BLAST, NCBI, UniProt, and PDB.
- Familiarity with programming languages such as Python, R, or Perl for data analysis.
- Learning to analyze and interpret biological datasets.
- Ability to apply bioinformatics in research, such as drug discovery, personalized medicine, and microbiome studies.

Faculty Coordinators:

1. Mrs. Soumya S Shanbhag



HOD




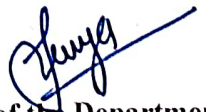
Principal

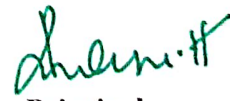
DEPARTMENT OF MICROBIOLOGY
Value Added Program on "Bioinformatics"

6th to 11th February 2025
Attendance Sheet

Sl. No.	Name of the Student	Registration Number	6 th February 2025	10 th February 2025	11 th February 2025
1	M LAVANYA	U18EV21S0016	Lavanya	Lavanya	Lavanya
2	AARUSHI K P	U18EV21S0020	Aarushi	Aarushi	Aarushi
3	SHIVANI B N	U18EV21S0023	Shivani	Shivani	Shivani
4	INDERJEET J S	U18EV21S0030	Inderjeet J S	Inderjeet J S	Inderjeet J S
5	LIDA MARYA GEORGE	U18EV21S0050	Lida	Lida	Lida
6	ARYAN RAGHU	U18EV21S0083	Aryan Raghu	Aryan Raghu	Aryan Raghu
7	SHREYA J M	U18EV21S0157	Shreya	Shreya	Shreya
8	MICHELLE SARAH ROY	U18EV21S0177	Michelle	Michelle	Michelle
9	SHEETAL K	U18EV21S0201	Sheetal	Sheetal	Sheetal
10	SHAIK FAHED HUSSAIN	U18EV21S0219	Shaiq	Shaiq	Shaiq
11	AATHIRA S	U18EV21S0221	Aathira	Aathira	Aathira
12	ALAINA KHAN	U18EV21S0222	Alaina Khan	Alaina Khan	Alaina Khan
13	ISHA RAJ	U18EV21S0231	Isha	Isha	Isha
14	S NACHIKETA	U18EV21S0257	Nachi	Nachi	Nachi
15	AFRAN PASHA	U18EV21S0260	Afran	Afran	Afran
16	SYED NABEEL ASHRAF	U18EV21S0273	Syed Nabeel Ashraf	Syed Nabeel Ashraf	Syed Nabeel Ashraf
17	ROOPA SHREE G	U18EV21S0327	Roopa	Roopa	Roopa
18	ARSHIYA FATHIMA	U18EV21S0349	ARSHIYA	ARSHIYA	ARSHIYA


Event Coordinator
(Mrs. Soumya S S)


Head of the Department
(Mrs. Soumya S S)


Principal
(Dr. Pushpa H)



VALUE ADDED PROGRAMME
BIOINFORMATICS
CERTIFICATE OF PARTICIPATION

This is to Certify that _____

of _____ has participated in 3 days Value Added Programme on **"Bioinformatics"**

from 6th to 11th February 2025 organized by The Department of Microbiology, M.S. Ramaiah College of Arts,
Science and Commerce-Autonomous, Bangalore

Mrs. Soumya S Shanbhag
HOD

Dr. Vemula Vani
Resource Person

Dr. Pushpa H
Principal, MSRCASC, Bangalore