Report on Pre-Conference Workshop

Artificial Intelligence in Modern Biological Research

Organized under ICALS-2026
Coordinated by: Dr. Gaurav Kumar, Dr. Dipesh Verma
Date: 11 March 2026
Venue: School of Life Sciences and Biotechnology (SLSBT), CSJMU, Kanpur

1. Introduction

A pre-conference workshop on *"Artificial Intelligence in Modern Biological Research"* was successfully conducted on 11 March 2026 by the School of Life Sciences and Biotechnology (SLSBT), Chhatrapati Shahu Ji Maharaj University (CSJMU), Kanpur. The workshop was organized as a precursor to the *International Conference on Advances in Life Sciences (ICALS 2026)* scheduled from 12–14 March 2026.

The primary objective of the workshop was to introduce students and research scholars to the transformative role of Artificial Intelligence (AI) in modern biological and biomedical research. The event focused on both conceptual understanding and practical exposure to AI-driven tools and methodologies.

2. Organizational Leadership and Support

The organizing committee acknowledged the constant encouragement and visionary leadership of:

- **Prof. Vinay Kumar Pathak**, Hon'ble Vice-Chancellor, CSJMU

- **Prof. Sudhir K. Awasthi**, Pro-Vice-Chancellor, CSJMU

Their support played a crucial role in enabling the successful execution of this forward-looking academic initiative aimed at empowering young researchers.

3. Inaugural Session

The workshop commenced with an inaugural session graced by distinguished dignitaries:

- **Prof. Sudhir K. Awasthi** – Pro-Vice-Chancellor

- **Dr. Anuradha Kalani** – Director, SLSBT

- **Dr. Shilpa D. Kaistha** – Dean Innovation, CSJMU

- **Prof. Varsha Gupta**

During his address, Prof. Awasthi emphasized the philosophy of *Pandit Deendayal Upadhyaya*, highlighting the importance of inclusive access to knowledge. He stressed that AI and digital technologies should reach every student and researcher to ensure equitable innovation.

The dignitaries collectively highlighted:

- The expanding role of AI in life sciences

- Its impact on drug discovery, genomics, and diagnostics

- The importance of ethical and responsible AI usage

- The need for critical thinking in scientific applications

4. Technical Sessions

4.1 Lecture on AI/ML in Drug Design

The technical session began with an expert lecture by:

- **Prof. Sanjeev Kumar Singh**
  Department of Bioinformatics, Alagappa University

Topic: *AI/ML-based Drug Design Targeting Virus–Host Interaction*

Key highlights:

- Application of machine learning in analyzing virus–host interactions

- Identification of potential therapeutic targets

- Acceleration of drug discovery pipelines using AI

4.2 Hands-on Training: AlphaFold Applications

A practical training session was conducted by:

- **Mr. Arun Praveen**
  Department of Bioinformatics, Alagappa University

Topic: *AI-based Structural Prediction and Molecular Elucidation of Viral Proteins using AlphaFold*

Participants learned:

- Protein structure prediction using AI tools

- Interpretation of structural models

- Practical workflows for computational biology

4.3 Session on Prompt Engineering and AI Automation

Another interactive session was delivered by:

- **Mr. Kshitij Kumar**
  Indian Institute of Technology (IIT) Kanpur

Topics:

- Prompt Engineering for Scientific Applications

- AI Agent Development for Research Automation

Key learning outcomes:

- Effective communication with AI systems

- Automation of research workflows

- Integration of AI tools into daily research practices

5. Participation and Engagement

The workshop witnessed active participation from approximately **100 students and research scholars**.

Participants gained:

- Practical exposure to AI-based bioinformatics tools
- Skills in critical evaluation of AI outputs
- Strategic competence in applying AI in biological research

6. Organization and Coordination

The workshop was successfully coordinated by:

- **Dr. Gaurav Kumar**
- **Dr. Dipesh Verma**

Additional faculty presence included:

- **Dr. Rajeev Mishra** (Associate Director)
- **Dr. Alok Pandey** (Associate Director)
- **Dr. Vinod K. Verma**
- **Dr. Soni Gupta**
- **Dr. Ekta Khare**
- Faculty members of SLSBT

7. Feedback and Outcome

At the conclusion of the workshop:

- Participants expressed **high enthusiasm and satisfaction**
- Many requested **more such hands-on training programs**
- The sessions significantly enhanced **practical and analytical skills**

The faculty assured that similar **skill-oriented workshops** will continue to be organized to strengthen research capabilities.

8. Conclusion

The workshop successfully achieved its objective of bridging the gap between artificial intelligence and biological research. It provided a comprehensive platform combining theoretical insights with hands-on experience, enabling participants to understand and apply AI tools effectively.

Such initiatives play a vital role in preparing the next generation of researchers for interdisciplinary and technology-driven scientific advancements.