

Bioinformatics Training in India

Professional program model for scalable bioinformatics education across India and spreading awareness and education all over the world



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Director, Gevanam Genomics , Lucknow

ABOUT US

At Gevanam Genomics, we are passionate about nurturing the next generation of biotech leaders. We equip them with the knowledge and skills to make groundbreaking contributions to the world of life sciences using bioinformatics tools and techniques.

Our Mission

**Our Mission at Gevanam Genomics is to bridge
the gap between biology and technology**

PROBLEMS

Lack Of Interest & Awareness

- Education Disparities
- Limited collaboration
- Healthcare Disparities
- Global Awareness Gap
- Research analysis gap

Problem In Decision Making on Big Data

- Selecting appropriate technologies, optimizing workflows, and managing resources effectively.
- Ethical and Regulatory Considerations
- Data Privacy and Security

Lack Of Knowledge & Hands On Training

- Instructors face barriers in providing education and gap in industry and healthcare sector.
- The lack of a bridge between IT leaders and biologists is a major barrier to optimal bioinformatics exploration for solving life sciences issues. For example Biological data from web services worldwide aids biologists, but diverse formats create hurdles. BioJava helps convert these formats to XML.

Lack OF Resources

- Limited Funding in computational infrastructure, software development
- Data Accessibility
- Infrastructure Constraints
- Technology Accessibility: Lack of efficient database integration, making it difficult to query multiple databases at once.
- Lack of standardized pipelines

LEVELS OF KNOWLEDGE ABOUT DIFFERENT FIELDS OF BIOINFORMATICS (NO . OF POPULATIONS NEEDS TO BE ADDED)

Fields of Bioinformatics	Poor n (%)	Fair n (%)	Average n (%)	Good n (%)	Excellent n (%)
Human Genome Project	199(38.5)	56(18.1)	67(21.7)	42(13.6)	25(8.1)
Genomic Sequence Analysis	127(41.1)	51(16.5)	61(19.7)	43(13.9)	27(8.7)
Sequence Databases	137(44.3)	54(17.5)	51(16.5)	43(13.9)	24(7.8)
Phylogenetics Prediction	169(45.7)	54(17.5)	50(16.2)	23(7.4)	13(4.2)
Prediction of RNA structure	171(55.3)	41(13.3)	60(19.4)	26(8.4)	11(3.6)
Gene Prediction and regulation	152(49.2)	61(19.7)	53(17.2)	29(9.4)	14(4.5)
Protein classification	139(45.0)	58(18.8)	54(17.5)	36(11.7)	22(7.1)
Protein structure prediction	160(51.8)	52(16.8)	51(16.5)	31(10.0)	15(4.9)
Genome analysis	141(45.6)	66(21.6)	52(16.8)	27(8.7)	23(7.4)
Microarray analysis	162(52.4)	63(20.4)	42(13.6)	25(8.1)	17(5.5)
Bioinformatics programming languages	176(57.0)	50(16.2)	39(12.6)	30(9.7)	14(4.5)
Percentage mean score (%)	70.7				
	[unsatisfactory]				
Overall Knowledge	No. %				
Satisfactory	192 43.6				
Unsatisfactory	248 56.4				

SOLUTIONS



**By Raising Publics
Awareness Specially
In Rural Areas**

Appreciation of the scope and strength of bioinformatics as a field by biologists, in order to raise public awareness of the merits and opportunities offered by this field



**Bioinformatics
Hands On Training
Programs At
Universities And
Research
Institutes**

- We are offering workshops, online courses, and internships to enhance skills in data analysis, programming, and statistical methods. Mentorship programs can also help junior bioinformaticians develop expertise.
- Encourage adoption of best practices for data analysis, documentation, and sharing
- Academic solutions



**Data management
and storage**

- Implement systems like Hadoop HDFS or GlusterFS for managing large datasets across multiple servers.
- Use SQL databases (for structured data and NoSQL databases (MongoDB, Cassandra) for unstructured data.
- Following established standards and guidelines for ethical research practices, data management, and reporting.
- Consolidation of all data into a single source and development of user-friendly software.



**Invest In Building
And Maintaining
HPC Clusters,
Cloud Computing
Infrastructure**

- Owning an HPC cluster provides complete control over the computing environment, optimizing performance for specific tasks.
- Sensitive data can be kept in-house, mitigating the risk of external breaches.
- Cloud computing offers easy scalability to adjust resources according to fluctuating demands, making it a flexible option for growing projects.

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Our contributions to bioinformatics training and internship





OUR PRODUCT/SERVICE

We offer bioinformatics training provided by our experts in biology, computer science, and programming languages used in bioinformatics. In addition, we provide diagnostic services such as comprehensive identification of all genetic variants present in the sample, pathogen identification, and detection of virulence factors. We are also involved in creating awareness about the field of bioinformatics and research in schools and colleges.



Why Bioinformatics Training is Important in India



Key Points:

- India is rapidly growing in **biotechnology + IT integration**
- Huge data from genomics, healthcare & agriculture needs analysis
- Government initiatives like **BTIS network (DBT)** promote infrastructure
- Helps in:
 - Disease prediction & drug discovery
 - Personalized medicine
 - Agricultural improvement

□ Bioinformatics connects **biology + data + AI**

Major Bioinformatics Hubs in India

Important Centers:

- **CSIR-IMTECH, Chandigarh** – Bioinformatics Centre (protein modelling, databases)
 - **Bose Institute** , WB, Kolkata– Centre of Excellence in Bioinformatics
 - **IIT Delhi** – Supercomputing Facility (advanced computational biology)
 - **National Institute of Immunology** , Delhi– Advanced research in disease biology
 - **Bioinformatics Institute of India, Noida** – Training & skill development
- **India has 100+ bioinformatics centres under DBT network and these institutes form the core research backbone of India's bioinformatics ecosystem**

Private / Autonomous Bioinformatics Institutes & Centres

- **Institute of Bioinformatics and Applied Biotechnology**
- **Institute of Bioinformatics**
- **International Centre for Genetic Engineering and Biotechnology**
- **Bioinformatics Institute of India**
- **Jawaharlal Nehru Centre for Advanced Scientific Research**
- ☐ **Many of these are autonomous / PPP / training-driven institutes contributing to skill development and research**

Bioinformatics & Genomics Companies (Private Sector)

□ Core Bioinformatics & Genomics Companies

- MedGenome
- Strand Life Sciences
- Genotypic Technology
- Xcelris Genomics
- ArrayGen Technologies

AI + Bioinformatics / Drug Discovery Companies

- Elucidata
- Innoplexus
- Bugworks Research

Biotech / Pharma with Bioinformatics Integration

- Biocon
- Syngene International
- Jubilant Biosys
- Illumina India Biotechnology

□ These companies provide services like **NGS analysis, AI drug discovery, and precision medicine**

Career Scope of Bioinformatics

Career Opportunities:

- Scientist / Researcher
- Data Scientist / AI in healthcare
- Pharma & Drug Design Expert
- Genomics Analyst
- Software Developer (Bio + IT)

□ Industries:

- Pharma companies
- Research labs
- IT & AI companies
- Government R&D

Demand is increasing due to:

- **Big data in biology**
- **AI-driven healthcare**
- **Global outsourcing opportunities**

Why Bioinformatics is Great for Women

Key Advantages:

- **Less field work, more computer-based jobs**
- Flexible careers (remote / research / data roles)
- Equal opportunities in STEM + AI
- Strong growth in **data science & healthcare analytics**

Encourages:

- Work-life balance
- Skill-based growth (not physically demanding)
- Global career opportunities

Women can excel in:

- **Research**
- **Data science**
- **Academia**
- **Healthcare innovation**

Training

Areas of Bioinformatics

1. Basic "bioinformatics and programming"
2. Genomics for Beginners
3. Drug discovery for Beginners
4. Protein Structural Biology for Beginners
5. Programming for Bioinformatics
6. Advanced Genomics (Pipeline development, analysis interpretation, Multiomics) + Project
7. Advanced drug discovery and structural biology + Project
8. Customized learning for Bioinformatics + Project
9. Projects, dissertation and content writing for Bioinfor-

Domains of Bioinformatics

1. Agro-informatics
2. Aqua-informatics
3. Microbial- informatics
4. Health- informatics
5. Eco-informatics
6. Nutritional informatics
7. Nano- informatics
8. Chemo-informatics
9. Pharmacogenomics
10. Plant/Animal informatics



Internship

Short-Term Internship (30 to 45 days): Ideal for those seeking a brief yet impactful introduction to bioinformatics. During this internship, you will gain hands-on experience in analyzing genomic and proteomics data, mastering essential bioinformatics tools and techniques, and contributing to ongoing research projects. This short-term program offers a concise yet comprehensive overview of the field, providing valuable insights and skills that will benefit your academic and career pursuits.

Mid-Term Internship (2 to 3 months): Dive deeper into the world of bioinformatics with our mid-term internship program. Over the course of 2 to 3 months, you will have the opportunity to engage in more extensive research endeavors, collaborate closely with our team of experts, and tackle challenging problems at the intersection of genomics, proteomics and computational biology.

Long-Term Internship (3 to 6 months): For those seeking a comprehensive immersion in bioinformatics, our long-term internship program offers an extended opportunity to delve into



alpana verma

Ritika Tripathi

Sakshi Rathore

Shikha

Hasan Ansari

MoveAbroad

Givanam's Fathom Notetaker

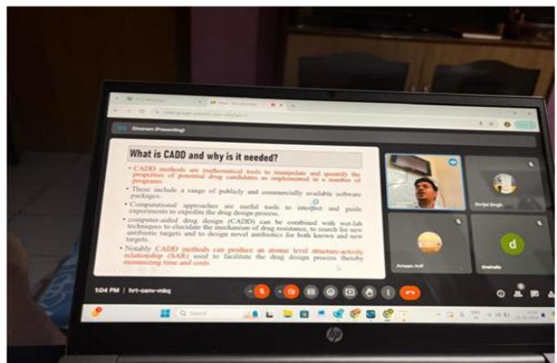
Sarthak Mishra

15 others

Givanam

Our Achievements





MEET OUR TEAM



Dr. Ruby Singh Sengar

Medical Researcher,
Scientific Writer, and Director
at Gevenam Genomics



Abhishek Singh Sengar

Managing Director



Professor Imran Khan

Chief executive officer

SCIENTIFIC ADVISORY BOARD



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Laurie A. Baker

Founding Director, Rose-Star

TARGET MARKET



Academic and
Research
Institutions



Healthcare and
Clinical Research



Pharmaceutical
and
Biotechnology
Companies



Education and
Training



Agricultural and
Food Sciences



Environmental
and
Conservation
Biology

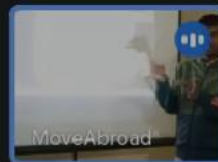


Bioinformatics
Service
Providers



Project Dissertation thrust areas

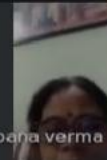
- **System and Network biology**
 - **Aqua Informatics**
 - **Mircobial Informatics**
 - **Immuno Informatics**
 - **Agro Informatics**
 - **Eco Informatics**
 - **Pharmaco Genomics**
 - **Toxico Informatics**
 - **Chem Informatics**
 - **BioInformatics in Food and Nutrition**
- 



 Sakshi Rathore



Hasan Ansari



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Priya Giri



Unnati Pathak



Ritika Tripathi



19 others



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Conclusions

A professional, scalable program combines standardized curriculum, hands-on labs, faculty development, and strategic industry links to produce job-ready bioinformatics professionals.

Next steps: pilot regional hubs, measure outcomes, and scale the model nationally for sustained workforce impact.

Thank you

Join Us in Shaping the Future

Website:

www.gevanamgenomics.com

Instagram:

<https://www.instagram.com/gevanamgenomics/>

Linkedin

[linkedin.com/company/gevanamgenomics](https://www.linkedin.com/company/gevanamgenomics).

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