



## CSIR Integrated Skill India Initiative

### Certificate Courses on Advanced Bioinformatics



#### Code – IICB-BIO

CSIR-IICB proposes one training course in Advanced Bioinformatics. This course is aimed at imparting skills on data handling using open source bioinformatics tools. At the end of the program, the participants are expected to analyse Next-Gen sequencing data. The courses are targeted to candidates having a postgraduate biological background.

**Educational Qualifications** : Pursuing/Completed- Bachelor of Engineering (BE) in Computer Science/Bachelor of Technology (B.Tech) in Information Technology / B.Tech in Biomedical Engineering / PG in any stream of Science/Technology/Pharmacy/Medicine

**Venue Of the course** : Jadavpur Campus & TRUE Campus, Salt Lake

**Duration** : 2 weeks (31<sup>st</sup> July to 11<sup>th</sup> Aug 2023)

**Course Fees** : Rs 5000/- (Inclusive of GST)

#### Content for Bioinformatics Course:

- Introduction to biological databases
- Sequence alignment techniques: pair-wise & multiple sequence alignment
- Phylogenetic analysis for biological sequences
- Introduction to In-silico molecular modeling: Energy optimization (different methods), Homology modeling.
- In-silico Drug designing: Structure based & ligand based drug designing
- Basics of molecular dynamics simulation: molecular dynamics to compute properties of protein structures and their flexibility
- Computational genomics: gene prediction, pattern searching, profile/motif based searching
- Basic statistics using R
- **Genomics**
  - An introduction to Sequencing technology and output data types
  - Basics of library constructions
  - Quality Control of sequenced data and data cleaning for genomic and metagenomic DNA.
  - Differential expression analysis using RNAseq technology. Metagenomics
  - Metagenomic 16S rRNA data analysis for understanding biological diversity.
  - Introduction to the Galaxy suite of tools





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#### Salient Features of the course:

- ☐ Theory and practical sessions are as per the course curriculum
- ☐ Lectures includes the entire process of routine clinical chemistry with multimedia aids
- ☐ Hands on training on Programming and Data handling.
- ☐ Live Sequencing by Oxford Nanopore Sequencer.
- ☐ Sequence Analysis with Next-Gen sequencing data.
- ☐ Continuous assessment through theoretical assignments & practical examinations for evaluation
- ☐ A certificate will be issued to the successful candidates
- ☐ **Seats Available : 10. It is mandatory for candidate to carry laptop to participate in the course.**
- ☐ **Candidates can apply for multiple courses. In such cases, shortlisting will be based on fulfilment of eligibility conditions, availability of seat and number of single choice applicants for the course.**
- ☐ Admission process is completely online including the payment of fees.
- ☐ Once a candidate is shortlisted for a particular course, any request for change of course will not be accepted .
- ☐ Candidates cannot take admission simultaneously in two different courses
- ☐ **Only those candidates will be considered eligible for the course who have received at least single dose of COVID vaccination approved by Govt. of INDIA**
- **Refunds to the enrolled candidates will be made by the institute in case of cancellation of the course due to low batch strength. Such candidates will be informed about withdrawal of course and refund of fees within stipulated time.**

