



The Oxford College of Science

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DEPARTMENT OF ZOOLOGY AND GENETICS



Event: EXPLORING BIOLOGICAL SEQUENCES WITH BIOINFORMATIC TOOLS

Date & Time: 28-05-2024

Venue: Room No. 215, Computer Lab

Co ordinator: Dr Deepa Gopinath, Assistant Professor, Department of Zoology and Genetics.

Resource Person: Dr Nimmi Haridas, Application Scientist, CIRIST Ecosystem, Kochi, Kerala.

The aim of the workshop was to introduce the students to essential bioinformatics tools and applications for nucleotide analysis, to provide insights into omics technology and applications of gene analysis in genetics, evolutionary models and phylogenetic analysis. Dr. Nimmi introduced the participants to OMICS technology, including genomics, proteomics, transcriptomics, and metabolomics, and their applications in biomedical, genetic and evolutionary research. She gave an overview of some key databases like GenBank, Ensembl, UniProt and demonstrated sequence retrieval and analysis using online tools like BLAST, FASTA. Participants had hands-on training in using bioinformatic tools for sequence alignment, searching, and analysis. Participants retrieved sequences from the GenBank database and used BLAST to compare these sequences with known genetic data. The participants used Clustal Omega to perform multiple sequence alignments on a set of protein sequences like haemoglobin, from different species. The RasMol session focused on visualizing 3D structures of proteins and nucleic acids using PDB files. Students practiced using RasMol to highlight alpha-helices and beta-sheets within a protein structure. The workshop successfully met its goals of equipping participants with essential bioinformatics skills.