·Sequence visualization and annotation
·Phylogenetic tree construction

Day 4 – Target Identification & Validation

Goal
Use sequence data to identify drug targets.

Topics
·Drug discovery pipeline overview
·Target identification strategies
·Essential genes & pathway analysis
·Homology-based target prediction

Hands-on
·Target mining from pathogen genomes
·Homology search against human proteins (off-target check)
·Functional annotation of targets
·Protein structure availability check (PDB / AlphaFold)

Day 5 – Structure–Based Drug Discovery

Goal
Understand how sequences lead to drugs.

Topics
·Protein structure basics
·Structure prediction concepts
·Molecular docking principles
·ADMET overview

Hands-on
·Protein structure visualization (PyMOL)
·Active site identification
·Docking demo (AutoDock / web-based tools)
·Interpreting docking scores
·Basic drug-likeness rules (Lipinski)

Final Takeaways
Participants will be able to:
·Analyze DNA/ Protein sequences confidently
·Perform BLAST, Alignment, and domain analysis
·Identify and validate potential drug targets
·Understand structure-based drug discovery workflows

Registration Form

Name:

Course:

College Name:

Signature of the Student:

Signature of the HOD:

Prerequisites
- Bring your own LAPTOP with the following configuration
- RAM : not less than 8GB Memory (Windows or Linux)
- Study Materials will be provided

FATIMA COLLEGE (Autonomous)
Affliated to Madurai Kamaraj University
Re-Accredited with 'A++' by NAAC (Cycle IV)
100th Rank in India Ranking 2025 (NIRF)
Mary Land, Madurai- 625 018

PG & RESEARCH DEPARTMENT OF ZOOLOGY
2nd - 6th March 2026

5 Day Workshop on Bioinformatics

Dr. Micheal Immanuel Jesses Ph. D
Scientific Manager
Miraiomics, Bangalore

VENUE: ZOOLOGY LAB
Time- 1:30 p.m. to 3:30 p.m.

ABOUT THE INSTITUTION

Fatima College (Autonomous), Maryland, Madurai is the Post Graduate College for Women affiliated to Madurai Kamaraj University. It is a Catholic Minority Institution established and run by St.Joseph's Society of Madurai (of the Congregation of the Sisters of St Joseph of Lyons, France) The College was started in 1953. It was upgraded into a Post graduate college in 1964 and Autonomous in 1990. The College now offers 23 under graduate programmes, 14 Post graduate programmes and 2 Professional Programmes, 8 Departments have become Research Centres. It has strength of 3956 students. The comprehensive assessment by NAAC re-accredited the College with 'A++' Grade in 2021 onwards.

ABOUT THE DEPARTMENT

The Department of Zoology was established in the year 1957. The Department offers Undergraduate, Postgraduate and Research programmes in Zoology and has recently been recognized as a Research Centre, marking a significant milestone in its academic growth. The vision of the Department of Zoology is to empower women through biological education and research. The objective of the Department is to ensure quality education by offering skill-based programmes, research training and entrepreneurial exposure to make students employable and globally competent. The Department has well-equipped laboratories and infrastructure facilities to promote higher studies and innovative research. The Department has been funded by DST-CURIE (2022–2027) and DST-FIST (2023–2028), strengthening its academic and research excellence.

PATRON

Rev. Dr. Sr. Ignatius Mary

Secretary

Rev. Dr. Sr. M. Fatima Mary

Principal

CON ENER

Dr. Antony Amala Jayaseeli

ORGANI ING SECRETARIES

Dr. . Bharathy
Dr. S. Barathy

ORGANI ING COMMITTEE

Dr A Tamil Sel i
Dr N Malathi
Dr Asnet Mar
Dr Sr i i C ria
Dr N Nagarani
Dr Thelma
Mrs T Rino

PROGRAMME AGENDA

Day Biological Se uences Data ases

Goal
Understand basics of Bioinformatics, Sequence data and where it comes from.

Topics
· DNA, RNA, Protein sequences
· FASTA format and sequence annotation
· Public databases: NCBI, UniProt, PDB
· Accession numbers & metadata

Hands-on
· Exploring FASTA files
· Retrieving sequences from NCBI & UniProt
· Basic sequence statistics (length, GC content)
· Translating DNA → protein

Day Se uence Alignment B AS

Goal
Learn how similarity searching works.

Topics
· Alignment principles
· Global vs local alignment
· Substitution matrices (PAM, BLOSUM)
· BLAST Algorithms

Hands-on
· Running BLAST (Nucleotide & Protein)
· Interpreting BLAST outputs
· Pairwise alignment
· Multiple sequence alignment (Clustal Omega / MUSCLE)
· Conserved region identification

Day A vance Se uence Analysis

Goal
Extract biological meaning from alignments.

Topics
· Motif and domain analysis
· Protein families
· Phylogenetic basics
· Functional prediction

Hands-on
· Domain search (Pfam / InterPro)
· Motif discovery (MEME intro)