

Language Algorithms and Tools (LAT-232)

(Credits: 3 Theory + 2 Lab)

UNIT I:

Advanced Programming in PERL Packages, Object Oriented Programming, Difference between OOPs of PERL & C++

UNIT II:

BIOPERL; Handling Software Interfaces with BioPerl APIs Handling Sequences, database & structures

UNIT III:

Local & Global Alignment Algorithms, Differences, Dynamic Programming : Smith & Waterman Algorithm with proof, Needleman & Wunsch Algorithm with proof.

UNIT IV:

Multiple Sequence Alignment, Concepts & Implementations.

UNIT V:

Amino Acid Substitution Matrices PAM & BLOSUM Derivation of Dayhoff Matrices

UNIT VI:

Profiles & Motifs General Tools, Techniques & Resources ClustalW, BLAST, FASTA, HMM.

Text/Reference Books:

1. David Mount, Bioinformatics Sequence and Genome analysis
2. Baxvanis, Bioinformatics.

Guide lines for practicals:

A two credit lab is to be conducted by covering the most relevant and useful topics from afore mentioned syllabus.