

Presentation title: Introduction: mathematics, statistics and computer science for biologists

Date: Monday 4 July 2011

Abstract

We will show how techniques developed in these three disciplines are brought to bear on two fundamental problems in bioinformatics. The first is the problem of sequence similarity search which includes problem of pairwise alignment (Smith-Waterman) and database search (BLAST). The second is the problem of finding sequence motifs.

Specific topics that we will touch on include the notions of p-value and E-value, extreme value distribution, dynamic programming, expectation maximization (EM), Gibbs sampling and the notion of a prior distribution.