

# Intro to Computational Bioengineering

## Concepts Introduced

### Cluster Analysis

Similarity Measures  
Within Sum of Squares  
Voronoi Diagram  
K-means  
Hierarchical

### Data Handling

Variance & Covariance Matrix  
PCA / Dimensional Reduction

### Decision Trees

ID3 Algorithm  
Shannon Entropy  
CART

### Protein & Gene Networks

Bayesian  
Networks

Joint Probabilities

ODEs

Graphs

### Predictive Algorithms

Image Analysis

Cell-Based Modeling

Multiscale Modeling