Credits: 3 credits


Reference materials: Lecture Notes (in 6 Units) will be made available on the Black-Board periodically.

Specific course information

- **Prerequisites:** Graduate level background in physical/biological sciences and/or engineering.

Specific goals for the course: This course is intended to impart the concepts and practical aspects of bioinformatics. Relevant biological considerations and computational aspects are bridged. Analyses of biological (genomic and proteomic) sequences will be indicated. Computational exercises are given as a term project on individual basis.

Brief list of topics to be covered:

Definitions and concepts in molecular biology

- Fundamentals of bio-and genetic-engineering and bioinformatics

Information resources: Biological databases –primary and secondary: Database searches

- Heterogeneous database, object-oriented database and distributed databases

Biological sequences: Analyses considerations and sequence search protocols

- Pairwise alignment & dynamic programming
- Multiple sequence alignment
- Hidden Markov Models (HMMs)
- RNA analysis, gene prediction, genomic/comparative analysis

Phylogenetic analysis

Analysis packages

Information networks/WWW: Their role in bioinformatics