

**Course: Bioinformatics****Instructor: Ka-Lok Ng****Course description**

This course covers the following topics: sequence alignment, dynamics programming, NCBI database, gene annotation, gene prediction, molecular phylogenetics, protein structure, and RNA structure.

**References**

Bioinformatics - A practical guide to the analysis of genes and proteins. 3rd edition.  
A. Baxevanis and B.F. Ouellette  
Wiley

**Course Schedule**

Biological sequences databases  
Using mapping databases  
Information retrieval from biological databases  
Genomic databases  
Predictive methods using DNA sequences  
Predictive methods using RNA sequences  
Sequence polymorphisms  
Predictive methods using protein sequences  
Mid-term  
Protein structure prediction and analysis  
Intermolecular interactions and biological pathways  
Accessing pairwise sequence similarity: BLAST and FASTA  
Analysis of protein multiple sequence alignments  
Phylogenetic analysis  
Comparative genomics  
Using DNA microarray to assay gene expression  
Proteomics and protein identification  
Final exam.

**Course evaluation**

Passing score for graduate course is 70. In general, score is allocated between class attendance, homework, mid-term written exam, final written exam and student oral presentation. Course instructor reserves the right to adjust the grading scheme.