Bioinformatics BCH 463 [Practical]

Lab (0) Introduction

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Office Hours: Sun, Mon, 11-1 PM

Marks distribution

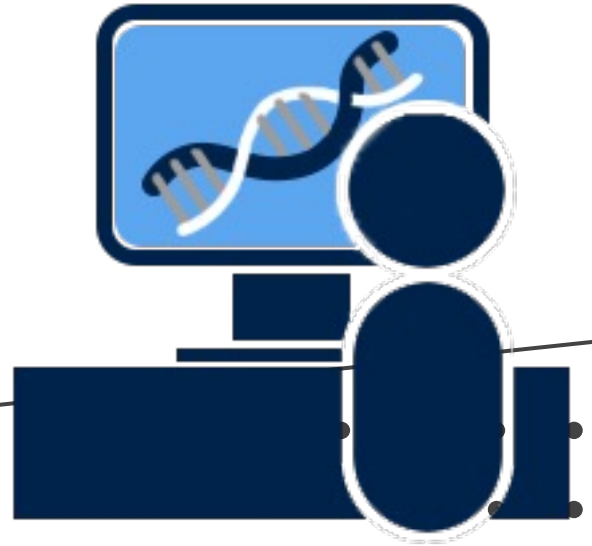
Tasks	Marks
Weekly exercise	3 Marks
Midterm exam	9 Marks
Assignment	4 Marks
Final	14 Marks
Total	**30 Marks**

Mid-term October 8th 2023

Final exam November 19th 2023

Introduction to Bioinformatics

- The combination of **biology** and **information technology**.
- **Bioinformatics**, means information technology applied to the management and analysis of biological data including sequences, structures and function.
- **Practical Bioinformatics** is focused on the fundamental skills of bio-informatics: the analysis of DNA, RNA, and protein sequences.



💡 **Let’s assume,,,**

1- You just discovered a **new virus**, what family does this virus belong to?

2- What gene causes **cystic fibrosis**?

3- You're about to start researching **BRCA1 gene**. Where to start?

4- You want to have an idea of a **protein product of a gene**.

Module labs

1. **NCBI** overview and searching in **PubMed** database.
2. **Nucleotide**, **Gene** and **OMIM** Databases
3. Practicing **ENSEMBL** genome browser.
4. Introduction to **BLAST** suite and **BLASTN**.
5. Designing PCR primers (**Primer3Plus**) and in-silico PCR (**USCS**).
6. Protein databases (**NCBI** and **Uniprot**)
7. Protein sequence **alignment** and **ExPASy** Tools.
8. Structure visualization using **Jmol**.

Source of information