Explore basic bioinformatic concepts!

- Database Types
- File Types
- Alignment
- Protein Sequences
- Searching NCBI
- Nucleotide Sequences

"The results suggest a helical structure which must be very closely packed containing probably 2, 3 or 4 coaxial nucleic acid chains per helical unit and having the phosphate groups near the outside."
-Rosalind Franklin, 1952

Units 1, 2, and 3 will be available on Laulima or Google Classroom for participants outside of the University of Hawaii.

Laulima

UNIT 1

Databases, Accessing NCBI Sequence Data, NCBI Taxonomy Database, GenBank Format, FASTA Format, Advanced PubMed Searches.

UNIT 2

Sequence Alignment, FASTA Searches, Finding orthologs and paralogs, BLAST Searches: Neighborhood Words, Translated Searches, Calculating Search Space in Bits, Calculating E-values.

UNIT 3

Introduction to UNIX tools, artificial intelligence for data analysis.

Seminars will apply introductory bioinformatic principles to real-world datasests.

Summer 2020 Seminar Dates:

Introduction to Bioinformatics:
- 6/3 10-11am on Zoom
- 6/10 10-11am on Zoom
- 6/17 10-11am on Zoom
- 6/24 10-11am on Zoom

Intermediate Bioinformatics:
- 7/1 10-11am on Zoom
- 7/8 10-11am on Zoom
- 7/15 10-11am on Zoom

Advanced Bioinformatics:
- 7/22 10-11am on Zoom
- 7/29 10-11am on Zoom
- 8/5 10-11am on Zoom

Students are encouraged to enroll in the seminar course and complete the online portion to earn a certificate.

HAWAII INBRE
IDeA Networks of Biomedical Research Excellence

These seminars that introduce participants to the basics of bioinformatics – the interfacing of computers and biology – and the fundamental tasks that bioinformatic tools are employed for in the analysis of proteins, nucleotides, and genomes.

Practical skills will begin with bioinformatic databases available from NCBI. Seminars will expand on existing databases with information on different types of alignments. Current challenge in bioinformatics such as: modeling where transcription begins and ends in DNA, predicting alternative splicing, predicting protein structure from sequences, determining homology, and developing comprehensive descriptions of genes and their products.

Online teaching tools will be employed followed by in-person seminars. At the completion of this introductory bioinformatics workshop, participants will have a solid conceptual understanding of bioinformatics and will be able to use all features of the NCBI bioinformatics toolkit.

Information on the INBRE Program can be found at: http://inbre.jabsom.hawaii.edu

LEARN BIOINFORMATICS

INBRE SRE group at the John A Burns School of Medicine.

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