Introductory Genomics and Bioinformatics

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Major topics in genomics and bioinformatics, with integrated discussion of associated ethical/legal/social issues. An overview of laboratory and computer-based methods to study genomes, and their applications. Hands-on computer lab session providing an opportunity to use and experiment with bioinformatics software and databases utilized in genomics and bioinformatics research.

TOPICS

* Obtaining the data: Genome sequencing, genome assembly
* Organizing the data: Gene/genome databases, browsers and searching
* Sequence alignment and sequence similarity search
* Genome assembly and short read mapping
* Human genome variation – SNP, copy number and structural
* Transcriptomics/RNA sequencing, chromatin IP and promoter analysis
* Multiple sequence alignment, intro to evolutionary analysis
* Orthologs, paralogs/gene families, phylogenetic analysis
* Protein, network-based analysis, and Systems Biology
* Microbial genomics and metagenomics of environmental/human microbiomes
* Human genomics and personalized medicine

INSTRUCTORS

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| --- | --- | --- |
| Fiona Brinkman Sophie Sneddon  A picture containing outdoor, person, sky, tree  Description automatically generatedA close-up of a person smiling  Description automatically generated |  |  |
| Bioinformatician, video  game enthusiast, cat person |  |  |
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