



Computational Genomics

An Advanced level Immersion Course for Investigators at UAB

May 6th-9th, 2019 from 9:00-12:30pm

\$50- Faculty, \$25-Post Doc and Fellows, \$10 -Students/Staff

**Location: Finley Conference Center
720 20th St. S, Birmingham, AL 35233**

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This course will provide the end user with a better knowledge of how to analyze their Genomics data using various Linux (command line) based analytical tools. Hands-on activities include analyzing whole genome for causal variants, transcriptome for gene expression, and epigenetics for calling peaks in CHIP/ATAC-Seq.

Learning Objectives:

1. Learn how to use Linux/Unix command line tools to analyze Next Generation Sequencing (NGS) data (whole genome/exome, transcriptome, epigenome).
2. Identify causal variants from whole genome/exome NGS data using Broad's Genome Analysis Toolkit (GATK) Best Practices guidelines.
3. Identify significant genes being regulated in transcriptome studies.
4. Call and annotate peaks from CHIP-Seq and ATAC-Seq studies.



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Genomic Sciences



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Schedule:

	Monday, May 6	Tuesday, May 7	Wednesday, May 8	Thursday, May 9
9:00 – 10:00	Introduction to UNIX/LINUX and Virtual Machine for Data Analysis Dr. David Crossman 9:00-10:45	Whole Genome Sequencing: Aligning Raw Reads Dr. David Crossman	Whole Genome Sequencing: Identifying causal variants using various databases Dr. David Crossman	Transcriptome: Pathway Analysis of Significant Genes Dr. David Crossman
10:15 – 11:15	Accessing and Submitting Jobs on UAB's Compute Cluster, Cheaha Dr. David Crossman 11:00-12:30	Whole Genome Sequencing: Preparing aligned reads with GATK Dr. David Crossman	Transcriptome: Aligning Raw Reads Dr. David Crossman	Epigenetics: Aligning Raw Reads for ChIP/ATAC-Seq Dr. David Crossman
11:30 – 12:30		Whole Genome Sequencing: Calling Variants with GATK Dr. David Crossman	Transcriptome: Estimating transcript abundances and differential expression Dr. David Crossman	Epigenetics: Calling/Annotating ChIP/ATAC-Seq peaks Dr. David Crossman

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For further information please contact Shaila Handattu at hande@uab.edu.