



Genetics and Genomics in Clinical Research

An Immersion Course for Investigators at UAB

October 10th-14th, 2016 from 8:30-12:30pm

\$50- Faculty, \$25-Post Doc and Fellows, \$10 –Students/Staff
Continental Breakfast served daily

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

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This course will review the principles, major technologies, and experimental approaches in genetics and genomics through both lectures and hands-on activities.

Learning Objectives:

1. Design an approach to identify a gene responsible for a phenotype in a family that segregates in a Mendelian manner.
2. Devise an appropriately powered case-control or transmission disequilibrium study to identify single nucleotide polymorphisms in linkage disequilibrium with a multifactorial disorder.
3. Develop a study comparing patterns of gene expression or methylation levels in normal vs. pathological tissue.
4. Formulate a protocol involved human research subjects for a genetic or genomic study to be submitted for IRB review.
5. Choose between alternative genotyping or next generation sequencing platforms appropriate for specific applications.
6. Utilize major bioinformatics databases to analyze genomic data.



Schedule:

	Monday, Oct 10	Tuesday, Oct 11	Wednesday, Oct 12	Thursday, Oct 13	Friday, Oct 14
8:30-9:00	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
9:00-10:00	Review of Genetic Principles Dr. Bruce Korf	Human Population Genetics Dr. Greg Barsh	Analytics of next-generation sequencing data Dr. Greg Cooper	Copy number variants (CNVs) and chromosomal microarray technologies Dr. Fady Mikhail	Approaches to Bioinformatics Data Analysis Dr. David Crossman
10:15-11:15	Overview of Genetics and Genomics in Clinical Research Dr. Bruce Korf	Genome Wide Linkage and Association Analysis Dr. Greg Barsh	Genomic counseling Ms. Whitley Kelley	Genotyping Technologies Next-Generation sequencing Dr. Mike Crowley	Transcriptome and Pathway Analysis Dr. David Crossman
11:30-12:30	Informed Consent and Ethical Issues Dr. Ashley Cannon	Genome Wide Association Analysis Dr. Hemant Tiwari	Variant Review Dr. Greg Cooper	Use of Public Databases and Genome Browser to Interpret CNV Data Dr. Fady Mikhail	Genetics in Medicine Dr. Bruce Korf

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