Genetics and Genomics in Clinical Research
An Immersion Course for Investigators at UAB

September 18th-22nd, 2017 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. Develop a study comparing patterns of gene expression or methylation levels in normal vs. pathological tissue.
3. Formulate a protocol involving human research subjects for a genetic or genomic study to be submitted for IRB review.
4. Choose between alternative genotyping or next generation sequencing platforms appropriate for specific applications.
5. Utilize major bioinformatics databases to analyze genomic data.
## Schedule:

<table>
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<tr>
<th>Time</th>
<th>Monday, Sept 18</th>
<th>Tuesday, Sept 19</th>
<th>Wednesday, Sept 20</th>
<th>Thursday, Sept 21</th>
<th>Friday, Sept 22</th>
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<tr>
<td>8:30-9:00</td>
<td>Breakfast</td>
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<td>9:00-10:00</td>
<td>Review of Genetic Principles &lt;br&gt; Dr. Bruce Korf</td>
<td>Genotyping Technologies Next-Generation sequencing &lt;br&gt; Dr. Mike Crowley</td>
<td>Use of Genomic Databases &lt;br&gt; Dr. David Crossman</td>
<td>Analytics of next-generation sequencing data &lt;br&gt; Dr. Greg Cooper</td>
<td>Genetics and Genomics Resources &lt;br&gt; Dr. Bruce Korf</td>
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<td>10:15-11:15</td>
<td>Human Population Genetics &lt;br&gt; Dr. Greg Barsh</td>
<td>Copy number variants (CNVs) and chromosomal microarray technologies &lt;br&gt; Dr. Fady Mikhail</td>
<td>Approaches to Bioinformatics Data Analysis &lt;br&gt; Dr. David Crossman</td>
<td>Genomic counseling &lt;br&gt; Ms. Whitley Kelley</td>
<td>Informed Consent and Ethical Issues &lt;br&gt; Dr. Ashley Cannon</td>
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<td>11:30-12:30</td>
<td>Principles of Association Analysis &lt;br&gt; Dr. Greg Barsh</td>
<td>Use of Public Databases and Genome Browser to Interpret CNV Data &lt;br&gt; Dr. Fady Mikhail</td>
<td>Transcriptome and Pathway Analysis &lt;br&gt; Dr. David Crossman</td>
<td>Cancer Genomics &lt;br&gt; Dr. Sara Cooper</td>
<td>Genetics in Medicine &lt;br&gt; Dr. Bruce Korf</td>
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For further information please contact Shaila Handattu at hande@uab.edu