

An Introduction to Molecular Epidemiology for Epidemiologists

Sunday, June 4, 2017, Boise

Time	Presenter	Topic
8:30	Greg Armstrong	Introduction
8:45	Greg Armstrong	Introduction to Genomics and Next-Generation Sequencing Objectives: by the end of the session the participant will... <ul style="list-style-type: none">• have a basic understanding of the pathogen genomics to be used throughout the course• have a basic understanding of sequencing technologies, including both Sanger and NGS• understand the major advantages and disadvantages of each technology• have a sense library prep technologies for NGS• know terminology commonly used in NGS
9:30	Greg Armstrong	Genome Assembly—Raw NGS Data to Assembled Contigs Objectives: by the end of the session the participant will... <ul style="list-style-type: none">• be able to explain different methods for processing raw NGS data into contigs• have a sense of how bioinformaticians accomplish this assembly
10:00		Break
10:15	Heather Carleton	Sequence Comparison and Phylogeny, Part I Objectives: by the end of the session the participant will... <ul style="list-style-type: none">• Understand what kSNP/kmer based analysis is• be able to explain (traditional) MLST and wgMLST• understand what a SNP analysis is and some of the considerations that go into SNP analysis• be able to explain different type of trees, both in terms of the underlying data and topology• know how to interpret key aspects of trees—topology, branch lengths, etc.• understand implications of tree structure and how to interpret clustering within a tree
11:00	Matt Wise	Case Studies 1—Bacterial Foodborne Illness
11:30	Heather Carleton	Sequence Comparison and Phylogeny, Part II
12:00		Lunch
1:00	Joel Sevinsky	Epidemiological Inference Objectives: by the end of the session the participant will... <ul style="list-style-type: none">• be able to make basic inferences from a phylogenetic tree• be able to explain important limitations of inferences from molecular phylogeny• be prepared to apply lessons from the morning lectures to case studies
1:45	Cheryl Ocfemia	Case Studies 2—HIV
2:15		Break
2:30	Joel Sevinsky	Phenotypic Inference Objectives: by the end of the session the participant will... <ul style="list-style-type: none">• understand how phenotype is inferred from sequence• be able to cite examples of phenotypic characteristics that can be inferred from sequence• understand the limitations of phenotypic inference
3:00	Tambi Shaw, Martin Cilnis	Case Studies 3—Tuberculosis
3:30	Greg Armstrong	NGS: Applications, Pathogens and Paradigms; Wrap-up Objectives: by the end of the session the participant will... <ul style="list-style-type: none">• be able to explain what the AMD program is• understand that the application of NGS goes beyond cluster detection• be able to cite several examples of how NGS is being used in public health• be able to explain what capacity state and local health departments are developing in NGS
4:00		End