

Discussion points to cover for each topic/week:

When, why, how to use various programs - how to choose which of several to use

Basic Population Genetics Questions

Issues to be addressed

Software used to address question (not in any particular order yet)

How do I get started?

What the meaningful questions am I asking with my data? What study design should I employ to collect the appropriate genetic data?  
 What should my data look like? How do I format my data for software?

Discussion about the "good questions"; perils, and pitfalls  
 Microsatellite Toolkit; Convert and others

What are the basic characteristics of my data?

What are the basic descriptive statistics and characteristics ( of my loci and data set (PIC, He, # A, etc)?)  
 How many loci do I need to answer my question? What is the resolution power/analytical power of the molecular tools I have in mind?  
 Are any of my loci out of HWE (ie, correlation among alleles within each locus)  
 Do I have null alleles at any of my loci?  
 Are any of my loci out of linkage diseq with others (ie, correlation among alleles between loci)?

Most programs such as Arlquin, Genepop, Microsatellite Toolkit; etc  
 Whichloci  
 Most programs such as Arlquin, Genepop, etc  
 ML RELATE and others  
 Many programs such as Arlquin, Genepop, etc

Is this group of animals a single sexually reproducing population?

Is this population a single sexually reproducing population?  
 Is there a correlation between geographic and genetic distances in this population (isolation by distance)?  
 (In addition to Isol. By Distance, what model of population genetic structure best fits this population or group of populations?)

Bayesian approaches including Structure, etc  
 Mantel tests included in such programs as Arlequin, etc

Multiple populations - what are their relationships?

Are these two populations reproductively isolated?  
 Which populations are more related?  
 What are the overall relationships of these populations?  
 How do I geographically represent landscape genetic data  
 From which population does this individual come?  
 Is the data from multiple populations consistent with metapopulation structure (other patterns and models)?

ArcView  
 Assignment testing, as in Arlequin, etc

What are the kin relationships?

Who are the relatives (parents, sibs, uncles, grandmothers, etc) of this individual?  
 How can I depict the pedigree relationships/genealogies  
 What is the average R, relatedness index for this population and how does that compare with others?  
 Is this population inbred relative to others? What is the average inbreeding coefficient for this population?

Spagedi; ML Relate  
 Progeny  
 Spagedi; MI ML Relate