Study Guide for Exam 4

(Exam 4 will be 3:30-5:30 Tuesday, May 7, 2019)

There are only 5 lectures contributing material for this exam. As with the study guide for exam 3, this study guide will grow after each lecture.

Thursday, April 18: Population genetics

- What is the difference between observed and expected heterozygosity?
- Does genetic drift result in evolution?
- What is the main factor determining how much of an influence drift will have in a population?
- What are two different processes that both lead to a reduction in the number of heterozygotes (i.e. heterozygosity) in a population?
- Which of these accomplishes the reduction in heterozygosity via fixation of alleles?
- What is the Wahlund effect?
- What does Wright's Fst measure?
- What is the minimum/maximim possible value for Fst (and what is true about a group of populations when Fst is at its minimum/maximum)?
- Which two assumptions of Hardy-Weinberg equilibrium cannot possibly be true in any human population?
- What is a coalescent event?
- What is effective population size, and how is it different from the census size of a population?
- Does the amount of time back to the coalescent event for two randomly selected gene copies depend on the effective population size? If so, how?
- Would you agree with someone who claimed that mitochondrial DNA proves that there was just one female human alive around 125,000 years ago that is the female ancestor of all humans alive today? What issues would you raise with this claim?