

North Dakota State University  
PLSC 731: Plant Molecular Genetics

On-Line Learning Study Guide  
*Molecular Population Genetic Analysis*

The following is your on-line study guide for the topic of "*Molecular Population Genetic Analysis*". You have access to the following resources at this WWW site:

- **Highlighted .pdf Notes** (used in the on-line lecture)
- **Classic paper relevant to the topic** (not required reading)

**Learning Objectives**

1. Define haplotype
2. Understand the use of neighbor-joining, principal component, and STRUCTURE analyses to describe the structure of a population
3. Describe the factors that lead to differentiation between populations
4. Understand  $F_{ST}$  statistics and one method that it is calculated
5. Explain the Neutral Theory of Molecular Evolution
6. Understand how  $\pi$  is calculated and how it can be utilized to study variation at a locus

**Be prepared to be assessed with respect to your understanding of the learning objectives by class discussion.**