Bio 320 - Chapter 5 Population Genetics - Summary Materials

Important Questions and Learning Objectives

Describe a simple experiment that was performed to provide evidence that phenotypic variation in a natural population was due to genetic differences among individuals or differences in environmental conditions.

Indicate three ways in which biologists can quantify genetic variation within populations.

Briefly describe the process of allozyme electrophoresis. Briefly describe the process of DNA fingerprinting.

Distinguish between genetic polymorphism and heterozygosity.

Distinguish between genotype and allele frequency. Be able to calculate these frequencies for hypothetical populations for which information on the genotypes of individuals in the population is given.

Explain the Hardy-Weinberg Principle. Indicate major assumptions of this principle. Provided with genotypes of individuals in a population, be able to determine whether the population (statistically) is in Hardy-Weinberg equilibrium.

Understand the relationship between Hardy-Weinberg equilibrium and sex-linked loci.

Important Terms

allozymes
allozyme electrophoresis
dna fingerprinting
polymorphism
heterozygosity
genotype frequency
allele frequency
hardy-weinberg equilibrium