Key Takeaways of the course 1, chapter III

Monohybrid Cross: Involves one trait with both parents being heterozygous for that trait.

Punnett Square: Used to predict offspring ratios, typically showing a 3:1 ratio in F2 generation for dominant to recessive phenotypes.

Test Cross: A tool to determine whether an organism with a dominant phenotype is homozygous dominant or heterozygous by crossing it with a homozygous recessive.

Backcross: Used to obtain offspring with genetic identity closer to one of the parents, especially when crossing hybrids.

Dihybrid Cross: Examines two traits, revealing Mendel's law of independent assortment with a typical 9:3:3:1 ratio in the F2 generation.

Product Rule: Calculates the probability of combined traits by multiplying individual trait probabilities (e.g., round and yellow).

Test Cross for Two Traits: Helps determine the genotype of an organism for both traits (e.g., whether it's homozygous or heterozygous for one or both traits).

Polyhybrid Cross: Considers three or more traits, increasing complexity and creating a larger number of phenotypic combinations.

Phenotypic Formula: The number of possible phenotypes in a polyhybrid cross is 2^n, where "n" is the number of traits.

Product Rule and Ratios: Ratios in polyhybrid crosses can become complex (e.g., 27:9:9:9:3:3:3:1 in a trihybrid cross) but follow Mendel's principles of independent assortment.