

Genetic Mutations and Variations.

Key Concepts:

1. Point Mutations (Substitutions, Insertions, Deletions)
2. Chromosomal Mutations (Translocations, Inversions, Duplications)
3. Gene Duplication
4. Gene Deletion
5. Frameshift Mutations
6. Silent Mutations
7. Missense Mutations
8. Nonsense Mutations

Types of Mutations:

1. Spontaneous Mutations (errors during replication)
2. Induced Mutations (environmental factors, mutagens)

Effects of Mutations:

1. Neutral (no effect)
2. Beneficial (increased fitness)
3. Harmful (decreased fitness)
4. Lethal (organism death)

Genetic Variation:

1. Genetic Drift
2. Mutation Rate
3. Gene Flow
4. Natural Selection

Key Terms: