

**Theory**

**Genetics** Molecular Genetics – Mutation, DNA repair and Recombination, Gene Concept (classical and modern), Genetics of Viruses, Bacteria, Transposons, Molecular Genetic Analysis, The Techniques of Molecular Genetics (elements of genetic engineering), Regulation of Gene Expression in Prokaryotes, Gene Regulation in Eukaryotes The genetic control of the Vertebrate Immune System, Complex Inheritance Patterns.

Population Genetics – Hardy-Wimberg Equilibrium, Systematic and Dispersive Pressures, Inbreeding and Heterosis.

**Biostatistics**

Probability rules and distribution. Binomial, Poisson and Normal distributions. Hypothesis testing, Z- test, student's 't' test, Chi square test, Analysis of variance and DMRT. Correlation and regression. Experimental designing, Planning of an experiment replication and randomization.

**Practicals**

Determination of inheritance pattern of different human characters (Widows Peak, ear loop, etc ) Isolation of DNA from Bacteria, Isolation of Plasmids, PCR.

**Books Recommended:**

1. PRINCIPALS OF GENETICS Gardner E.J., Simmons M.J. and Snistad A.P. (Latest available Addition)
2. Text Book for Biostatistics: ELEMENTRY STATISTICS A STEP BY STEP APPROACH, By Bluman.A. G Latest available Addition
3. Reference Books. Concepts of Genetics By Klug, W.S and Cummings M.R.