

SARDAR PATEL UNIVERSITY
Programme: BSC (GENETICS)
Semester: III
Syllabus with effect from: June 2012

Paper Code: US03CGEN02	Total Credit: 3
Title Of Paper: Principles of Genetics - I	

Unit	Description in detail	Weighting (%)
1	INTRODUCTION AND HISTORY OF GENETICS Introduction, History, Applications(in agriculture, medicine, society) and Sub-disciplines of genetics. Mendel's Experimental Design. Laws of inheritance with reference to mono-, di-and tri-hybrid crosses Mendelian genetics in Humans (pedigree analysis, genetic traits) Interaction of genes (comb pattern in poultry), Epistasis, supplementary genes, inhibitory genes, complimentary genes, Lethal genes, modifying genes. Multiple alleles, Pleiotropy, Co-dominance.	
2	SEX DETERMINATION IN PLANTS AND ANIMALS Sex determination in animals, Chromosome theory of sex determination, Heterogametic and homogametic individuals, Environmental sex determination Hormonal sex determination, Sex determination in plants and Drosophila, Gynandromorph, Dosage compensation, Genetic imprinting Sex linked traits ,Sex influenced traits, Sex limited traits, Non-disjunction of sex chromosome in drosophila	
3	INTRODUCTION TO BIOSTATISTICS Introduction to Biostatistics, Definition of statistics and biostatistics Development and applications of biostatistics, Collection and Presentation of data, Classification and tabulation. Diagrammatic (Line chart, Pie chart and multiple bar) and Graphical representation(Histogram , frequency polygon, frequency curve) . Measures of central Tendency: Mean, Median and Mode	
4	MEASURES OF DISPERSION AND VARIANCE Geometric mean and Harmonic mean, Percentile, Selection of the appropriate measure of central Tendency, Measures of Dispersion: Range and Interquartile range, Mean deviation, Variance , standard deviation and their coefficients	

Basic Text & Reference Books:

- Fundamentals of Genetics - B.D. Singh, Kalyani Publishers
- Principles of Genetics – D. Peter Snustad & Michael J. Simmons, John Wiley & Sons. Inc
- Genetics - Strickberger 3rd Ed. Prentice Hall of India Pvt. Ltd.
- Cell Biology, Genetics, Molecular Biology, Evolution & Ecology - Verma & Agarwal, S. Chand & Company Ltd.
- Genetics - Peter J. Russel 5th Ed. Benjamin Cummings Publishing Company
- Genetics - P.K. Gupta 3rd Ed. Rastogi Publications.
- Fundamentals of Statistics - S.C.Gupta 11th Ed. Himalaya Publishing House.
- Methods in Biostatistics - B.K. Mahajan 6th Ed. Jaypee Publishers
- Statistics - D.C. Sancheti and V.K. Kapoor, Sultan Chand & Sons.
- A handbook of Agricultural Statistics - S. R. S. Chandel, Anchal Prakashan Mandir, Kanpur.
- A textbook of Agricultural Statistics - R. Rangaswamy, New Age International Publications.
- Introduction to Biostatistics - Pranab Kumar Banerjee, 3rd Ed. S. Chand & Company.
- Statistics made Simple - K.V.S.Sharma, Prentice Hall of India.

