K.T.S.P. MANDAL'S SAHEBRAOJI BUTTEPATIL MAHAVIDYALAYA
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Department of Zoology

Teaching Plan (A.Y.2024–2025)

F.Y. B. Sc. Zoology

Course Title: Genetics and Medical Zoology, Course Code: ZOO 101 MJ

Sr. No	Month	Topics	Teacher
1	July	**1) Recapitulation of Mendelian Genetics:** 1.1 Mendel's work: Selection of experimental plant. 1.2 Mendelian Inheritance: Laws of heredity and their practical applications (Monohybrid cross and Dihybrid cross). 1.3 Test cross and back cross.	PPS
2	July	**2) Non-Mendelian Genetics:** 2.1 Concept of Gene Interaction: Intra-allelic interactions and Interallelic interactions. 2.2: Dominance and Co-dominance. 2.3 Inter-allelic interactions: Co-dominance and incomplete dominance (concept of epistasis, complimentary factors (9 : 7), supplementary factors (9 : 3 : 4), inhibitory factors (13 : 3), duplicate dominant genes (factors) (15 : 1). 2.4 Lethal genes in *Mus musculus*.	PPS
3	Aug	**3) Multiple alleles:** 3.1 Concept and characteristics. 3.2 ABO blood group system, Inheritance of Rh antigen, Erythroblastosis foetalis and their medicolegal importance.	PPS
4	Aug	**4) Chromosomes:** 4.1 Introduction: Morphology and types of chromosomes (based on the position of centromere and involvement in sex determination). 4.2 Chromatin, its structure and its types (Euchromatin and Heterochromatin). 4.3 Giant chromosomes (Polytene chromosome and Lamp brush chromosomes). 4.4 Chromosomal Aberrations: Structural (Deletion, duplication, inversion and translocation) and Numerical (Euploidy, monoploidy, polyploidy - auto polyploidy & allopolyploidy and aneuploidy - monosomy, nullisomy, trisomy).	PPS

5	Aug & Sept	**5) Sex Determination:** 5.1 Genetically controlled sex determination: (Heterogametic males: XX - XY & XX - XO systems, Heterogametic females: ZZ - ZW system), Genetic balance system in Drosophila. 5.2 Parthenogenesis and Gynandromorphism.	PPS
6	Sept	**6) Sex-linked Inheritance:** 6.1 Sex-linked inheritance: Characteristics, types (X - linked, Y - linked, and XY - linked). 6.2 Examples of Sex-linked inheritance: Hemophilia, Colour blindness and Hypertrichosis.	PPS
7	Sept	**7) Introduction to Medical Zoology:** 7.1 Definitions: Parasitology, host, parasite, vector, symbiosis, commensalisms, mutualism, parasitism and zoonosis. 7.2. Branches of medical zoology: Medical Protozoology, Medical Helminthology, Medical Entomology.	PPS
8	Oct	**8) Epidemic Diseases in Human:** Occurrence, causative organism, symptoms and eradication programs of the following: 8.1 Typhoid. 8.2 Cholera. 8.3 Small pox.	PPS
9	Oct	**9) Vector Borne Diseases in Human:** Occurrence, causative organism, symptoms and eradication programs of the following: 9.1 Dengue. 9.2 Chicken Guinea. 9.3 Viral Influenza. 9.4 Scabies.	PPS
10	Oct	**10) Microbial Diseases in Human:** Causative organism and clinical features of the following: 10.1 Tuberculosis. 10.2 Hepatitis. 10.3 AIDS.	PPS
11	Oct	**11) Investigations and treatments of human physiological disorders:** 11.1 Angiography. 11.2 Angioplasty. 11.3 Dialysis.	PPS

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