



AGB 121: Principles Of Animal Genetics And Population Genetics (2+1)



SYLLABUS

THEORY

History of Genetics, Chromosome number and types in livestock and poultry. Mitosis, Meiosis and Gametogenesis. Overview of Mendelian principles; Modified Mendelian inheritance: gene interaction; multiple alleles; lethal; sex-linked, sex limited and sex influenced traits; linkage and crossing over, Mutation; Chromosomal aberrations; Cytogenetics, Extra-chromosomal inheritance. Gene concept - Classical and Molecular.

Population genetics: Genetic structure of population; Gene and genotypic frequency; Hardy – Weinberg law and its application; Forces (e.g. Mutation, migration, selection and drift) changing gene and genotypic frequencies.

Quantitative genetics: Nature and properties; Values and means, Components of phenotypic and genotypic variance; Concept of genotype and environment interaction, Resemblance between relatives; heritability, repeatability, genetic and phenotypic correlations.

PRACTICAL

Demonstration of karyotype of Farm animal species; solving problems on inheritance of Mendelian traits, Linkage and Crossing over. Calculation of gene and genotypic frequencies, Testing a population for Hardy- Weinberg equilibrium; Calculation of effects of various forces that change gene frequencies; Computation of population mean; Estimation of heritability, repeatability, Most probable producing ability (MPPA), genetic and phenotypic correlations.