Name of the Programme: M. Sc. Zoology

Course Code: ZOO–522 **Title of the Course:** Advances in Genetics (Practicals)

Number of Credits: 01

Effective from AY: 2023-24

Pre-requisites for the Course:	Basic working knowledge of classical genetics	
Course Objectives:	1. To outline the techniques involved in genetic analysis 2. To identify human genetic disorders based on available data	
Content:	Preparation of metaphase plates and karyotyping Dermatoglyphics analysis of human handprint Pedigree analysis of X-linked and autosomal recessive, dominant characteristics G banding of chromosomes Random amplification of polymorphic DNA Linkage mapping by two point and three point cross	15 x 2 hours
Pedagogy:	Laboratory-based learning	
References/ Readings:	1. P. Turnpenny, S. Ellard, Emery's Elements of Medical Genetics and Genomics, 16th ed. Elsevier, 2020. 2. T. Strachan, A. Read, Human Molecular Genetics, 5th edition. Garland Science, 2018. 3. M.L. Kothari, L.A. Mehta, and S.S. Roychoudhury, Essentials of Human Genetics, India: Oxford University Press, 2009. 4. B.A. Pierce, Genetics: A Conceptual Approach, 7th ed. W. H. Freeman and Company, 2020. 5. B. Alberts, A. Johnson, J. Lewis, M. Raff, K. Roberts, and P. Walter, Molecular Biology of the Cell, 6th ed. New York, USA: Taylor & Francis Group, 2014.	
Course Outcomes:	The learner will 1. Construct pedigree charts to determine modes of inheritance. 2. Develop techniques for genetic analysis of human traits / disorders. 3. Interpret the results of genetic tests. 4. Determine the medical significance of genetic alterations.	

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