

Lecture Plan		
Name of the College: Government College of Arts, Science and Commerce. Sanquelim - Goa		
Name of Faculty: Mrs. Preethi M. Pednekar	Subject: Zoology	
Paper code: ZOO 201 Cell Biology and Genetics	Program: S.Y. BSc	Division: A
Academic year: 2025-26	Semester: III	Total Lectures: 30
Course Objectives: Imparting --understanding of the cellular organisation. 2. Understanding the genetic basis of inheritance. 3. Analyze the structure and function of cells, organelles, and cellular components. 4. Gain practical experience in laboratory techniques used in cell biology and genetics research.		
Expected Course Outcome: At the end of the course, students will be able to 1. Explain the cellular organisation. 2. Distinguish between prokaryotic and eukaryotic cell 3. Interpret the transmission of traits based on the laws of		

inheritance. 4. Predict the outcome of monohybrid and dihybrid genetic crosses							
Student Learning Outcome: At the end of the course, students will be able to 1. Explain the cellular organisation. 2. Distinguish between prokaryotic and eukaryotic cell 3. Interpret the transmission of traits based on the laws of inheritance. 4. Predict the outcome of monohybrid and dihybrid genetic crosses							
Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June 2025	23/6/25	28/6/25	3	Prokaryotic chromosome organisation,		Power point presentation,	1. B. Alberts, A. Johnson, J. Lewis, M. Raff, K. Roberts, and P. Walter, Molecular Biology of the Cell (6th edn), Garland Science, 2014. 2. C.B. Powar, Cell biology, Himalaya Publishing House, 2010. 3. C.B. Powar, Genetics – Vol.1 Himalaya Publishing House,
				Eukaryotic Chromosome organisation (nucleosome to metaphase chromosome)			
				Cell division: -Mitosis -stages and significance			

							2010. 4. E.J. Gardner, M.J. Simmons, D.P. Snustad, Principles of Genetics (8th Edition), Wiley, 2006. 5. J. Hardin, G. Bertoni, L. Kleinsmith, Beckers World of the Cell (8th Edition) Pearson Benjamin Cummins Publishing House, 2014. 6. P.S. Verma and V.K. Agarwal, Genetics 9th edition, S.Chand Publications, 2010.
July	30/6/25	5/7/25	2	Meiosis -stages and significance Giantchromosomes— Lampbrush chromosome			
	7/7/25	12/7/25	2	Polytene chromosome Mutation—gene			
	14/7/25	19/7/25	2	chromosomal mutations, Mutagens (radiations and chemicals)			
	21/7/25	26/7/25	2	Benign and Malignant			

				neoplasms, Characteristics of a cancer cell			
	28/7/25	2/8/25	2	Monohybrid, Dihybrid crosses and Mendel's Laws			
Aug	4/8/25	9/8/25	2	Epistatic interactions (9:7, 12:3:1, 13:3, 15:1)			
	11/8/25	16/8/25	2	Multiple Alleles (Rabbit coat colour), Multiple genes (skin colour in humans).			
	18/8/25	22/8/25	2	Sex linked, Sex limited genes			
	2/9/25	8/9/25	2	Sex influenced inheritance. Symbols and rules of construction of a pedigree chart (one example each of an autosomal dominant trait, autosomal recessive trait and an X linked recessive trait) .			
	9/9/25	15/9/25	2	Sex determination---- Chromosomal--- Drosophila (genic balance theory), Humans			
	16/9/25	22/9/25	2	Fowl, Grasshopper, Honeybee.			

	23/9/25	29/9/25	2	Environmental basis of sex determination in <i>Bonellia viridis</i> and Turtles			
Oct	30/9/25	6/10/25	2	Cytoplasmic inheritance ---Kappa particles in <i>Paramecium</i>			
	7/10/25	13/10/25	2	The role of Mitochondria in Maternal inheritance in Humans			
	14/10/25	18/10/25	2	Problems based on genetics and revision			

*** Assessment Rubrics**

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
Practical	25
Project	--
Semester End Exam	60